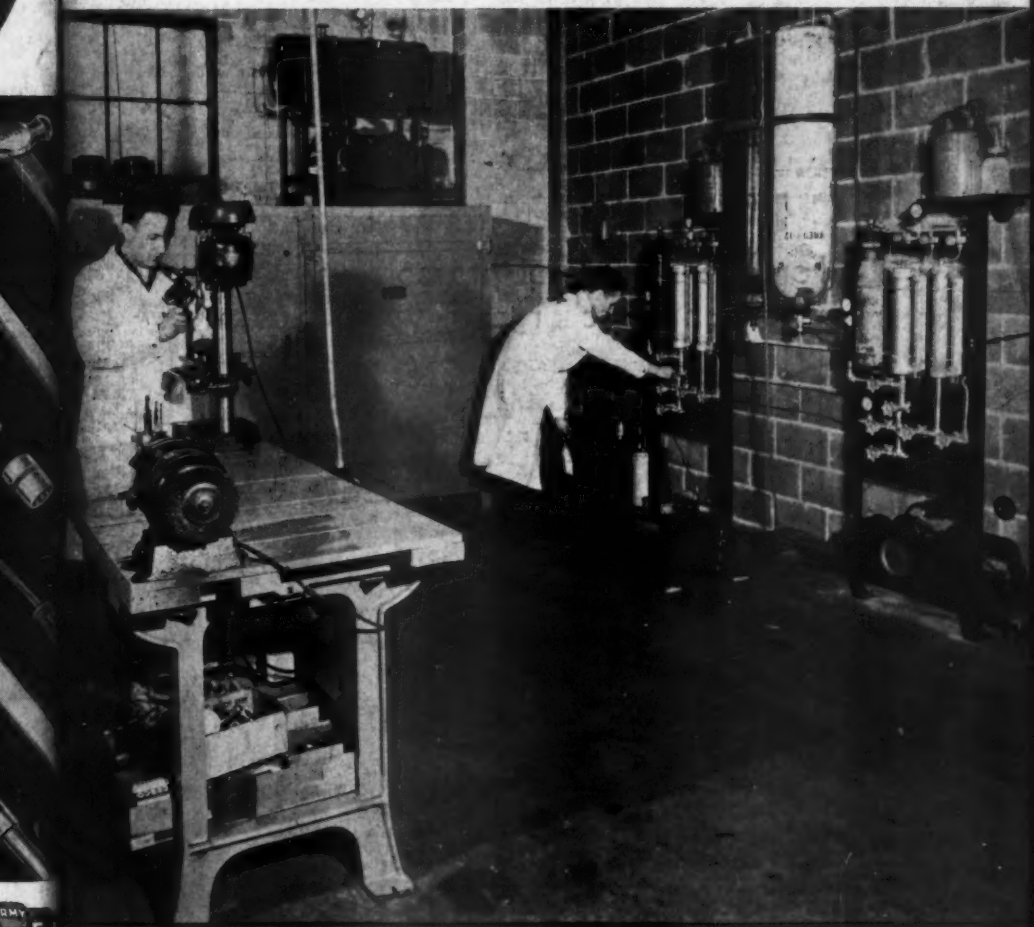
TECHNOLOGY DEPT.

The Refrigeration Service Engineer

VOL. 14 · NO. 4 ★ ★ ★ APRIL. 1946



Fifteen Year Record of a Service Company Shows Substantial Growth (See Page 23)

Here they are

CHICAGO VALVE PLATES

For late model compressors with suction and discharge in valve plate.

These new Chicago Valve Plates cut cost and save work. The only valve plates with removable valve seats, they make it possible to replace only worn parts, not entire units. To take them apart, merely remove screws and pull seat out with the fingers. Valve seats are firmly held in position by a retainer bar, strongly secured to the plate. Complete range of sizes to accommodate all makes of compressors.

Write for Bulletin 545.

Ask your jobber to show you the new Chicago Valve Plates . . . also These Two Famed CHICAGO SEALS

CHICAGO COLDSPOT SEAL

CHICAGO GENERAL REPLACEMENT SEAL

CHICAGO SEAL CO. 20 NORTH WACKER DRIVE CHICAGO 6, ILLINOIS

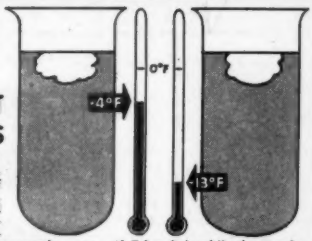
THE REFRIGERATION SERVICE ENGINEER, Nickerson & Collins Co., Publishers, 435 N. Waller Ave., Chicago 44, Ill. Published monthly. Vol. 14, No. 4, April, 1946. Entered as second class matter March 4, 1938, Chicago, Ill., under the Act of March 3, 1879. Subscription in the United States, $2.00 per year; all other countries, $3.00 per year.

The Ansul Research Staff

CONTINUING REPORT ON:

WAX SEPARATION FACTS

SAME OIL *but* DIFFERENT SHIPMENTS



An example of wax separation in two samples of presumably the same oil. Both tests were prepared with a 10 per cent concentration of oil in the refrigerant. Sample on the left separated wax at −4° Fahrenheit while the sample on the right did not separate wax until −13° Fahrenheit. In purchasing oils for low temperature refrigeration, specify wax separation temperature.

by the Ansul Wax-Oil Separation Method

● The temperature at which wax separates from an oil in oil-refrigerant mixture is influenced by three determining factors:

1. The *nature* of wax in the oil.
2. The *amount* of wax in the oil.
3. The *amount of oil* in the oil-refrigerant mixture.

Different oils possess different wax separation characteristics.

The nature and amount of wax content varies in different oils and may even vary in different samples of supposedly the same oil taken from different shipments.

These inconsistencies confuse the engineer in his efforts to select or recommend suitable lubrication for low temperature refrigerating systems and, to alleviate this condition, Ansul Chemical Co. is ready and anxious, at all times, to co-operate with refrigeration engineers and refrigeration service engineers.

REMEDIES

To eliminate wax trouble in expansion valves and coils:

1. Use an oil which separates little or no wax from its mixture with the refrigerant at the operating temperature of the valve.

2. Install an oil trap to cut down the amount of oil (and consequent wax) circulating with the refrigerant.

SEND FOR THIS BULLETIN

An informative reprint, *"The Separation of Wax from Oil-Refrigerant Mixtures," will be sent on request. No obligation. Just address . . .*

*REG. U. S. PAT. OFF.

ANSUL JOBBERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

Samples of ice machine oils, submitted by users of Ansul Refrigerants to Ansul Jobbers, are tested by Ansul laboratories without charge by the Ansul Standard Wax-Oil Separation Method. This approved method, developed and standardized especially for use in connection with oils used in refrigerating systems, provides an accurate determination of the amount of wax which separates from an oil at low temperatures.

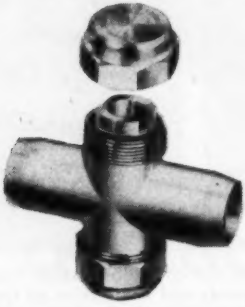
Ansul refrigerants are available at leading distributors everywhere.

ANSUL CHEMICAL COMPANY

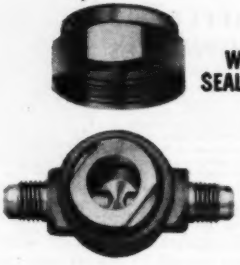
REFRIGERATION DIVISION, MARINETTE, WISCONSIN

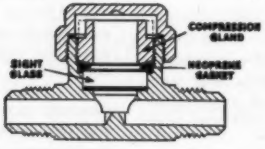
DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22" AND "FREON-113"

MUELLER BRASS CO. LIQUID INDICATORS WILL NOT LEAK



DOUBLE PORT LIQUID INDICATOR





The improved design of our liquid indicators is effective assurance against refrigerant leakage around the sight glass. The sight glass is sealed into the forged brass body by a heavy Neoprene gasket which, in turn, is compressed by a packing gland, which forces the pliable gasket along the sides of the glass and produces a perfect seal.

Mueller Brass Co. Liquid Indicators are made in a complete range of styles and sizes. The seal cap type may be installed where light conditions are favorable. Where the light is poor, we recommend the use of our double port liquid indicators illustrated here. By flashing a light through one port, the exact condition of the refrigerant may be determined through the other port.

The new design of the compression gland permits the use of standard wrenches for tightening.

MUELLER BRASS CO.
PORT HURON, MICHIGAN

MILLS INDUSTRIES INC.

USE
MUELLER BRASS CO.
PARTS IN THEIR
DIRECT DRIVE
COMPRESSOR

Mills Industries, Incorporated, Chicago brings to the refrigeration market a new type compressor—a direct-drive unit.

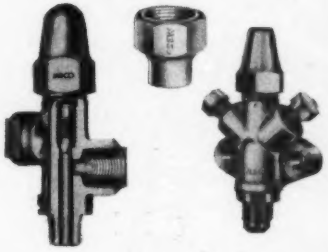
An electric motor, assembled directly into the compressor casting, drives the compressor directly with the motor rotor mounted on the compressor shaft. The compressor runs at motor speed, 1750 R.P.M. This is approximately four times as fast as the standard belted type of prewar compressors.

Since these new direct-drive compressors run four times as fast as the old machines, the cylinders are only one-fourth as large for the same capacity. Belts, flywheels, and pulleys are eliminated.

This compressor is the result of years of painstaking tests under trying conditions. They will be easier to inspect and service; standardization of parts will make them easier to manufacture. The universal demand for compactness and lightweight will be built into their new direct-drive unit. Rugged construction, skillful engineering and the highest type parts are the keynote of this unit.

MILLS INDUSTRIES INC.
4100 FULLERTON AVE. • CHICAGO, ILL.

These Products MUST BE GOOD!



BUILT-IN QUALITY
TIME-TESTED PERFORMANCE

Mueller Brass Co. Valves, Fittings and accessories are sturdily and dependably built. They have a well-earned reputation for built-in quality and time-tested performance.

The Mueller Brass Co. line of refrigeration products is exceptionally complete, and all products are designed and manufactured specifically for mechanical refrigeration work. THEY ARE USED BY ALL OF THE LARGEST MANUFACTURERS THROUGHOUT THE UNITED STATES.

OBVIOUS CONCLUSION: Mueller Brass Co. products must be good!

MUELLER BRASS CO.
PORT HURON, MICHIGAN

THAWZONE
PATENTED
The PIONEER FLUID DEHYDRANT
TRACE
REFRIGERANT
LEAK DETECTOR
TWO PRODUCTS
WITH
PARALLEL
PURPOSES!

. . . to watch over refrigerating systems so that the height of efficiency is steadily maintained.

HIGHSIDE CHEMICALS CO.

195 VERONA AVE. NEWARK 4, N. J.

2 WAYS TO WIN A FRIEND...

1. DEAL HIM A ROYAL FLUSH
2. EQUIP HIS SYSTEM WITH HENRY PRODUCTS

● You deal a winner for your customer and yourself every time you install a Henry Product. The winning combination of Henry Packless Valves, Driers, Strainers, Relief Valves and Flow Control Devices hits the jackpot—customer satisfaction and more profit for you. Success is "in the cards" for men who use and sell Henry Products. Call us, it's no bluff.

BALANCED ACTION DIAPHRAGM PACKLESS VALVES

Non-directional. Cannot stick shut regardless of differential in pressure above or below valve seat. Ports-in-line eliminate tube bending. One of many Henry Products serving the industry.

HENRY VALVE COMPANY

Packless and Packed Valves • Strainers • Driers for Refrigeration and Air Conditioning
Ammonia Valves • Forged Steel Valves and Fittings for Oil, Steam and Other Fluids

3260 W. GRAND AVE.
CHICAGO 51, ILLINOIS

REMIND YOURSELF

Refill with VIRGINIA Refrigerants

More than 130 wholesalers strategically located throughout the United States and Canada assure you of instant service when you order VIRGINIA Refrigerants . . .

"EXTRA DRY ESOTOO"
(Liquid Sulfur Dioxide)

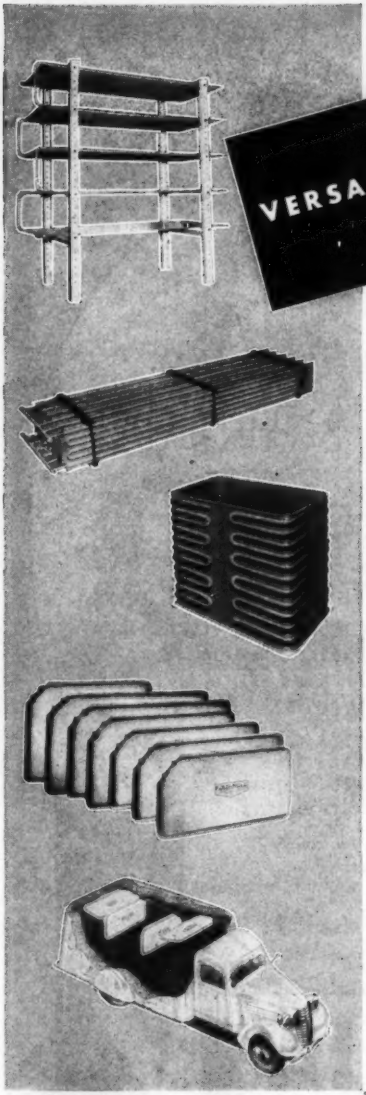
"V-METH-L"
(Methyl Chloride)

Check your cylinders and refill today with dependable VIRGINIA Refrigerants.

Warm weather is almost here—be ready for those emergency calls.

Distributors of
"Freon" Refrigerants 11, 12, 21, 22, 113

VIRGINIA
SMELTING COMPANY
WEST NORFOLK, VIRGINIA
NEW YORK • BOSTON • DETROIT



VERSATILE AS A JEEP

The multi uses of the Jeep were proven in the war. No obstacle was too tough to stop it for long. Developed and tested in war, Kold-Hold Serpentine Plates have the versatility to answer the varied needs of the Quick-Freeze field. Serpentine Plate construction eliminates the necessity for internal tubing and reduces weight per square foot. Whether used as plates or fabricated into liners or stands, Serpentine construction eliminates all joints, insuring uninterrupted circulation of the refrigerant and preventing oil logging. The Serpentine principle develops the highest rate of heat acceptance ever attained with natural convection lowsides. The varied applications of Serpentine Plates are:

1. Used as individual plates in building cabinets and fountains.
2. Used as Banks of plates in locker plants, cold storage rooms, sharp freeze rooms or in any installation where large capacities have to be pulled down fast.
3. Used as sharp freeze stands in locker plants. The flat sides mounted up in the stand units provide continuous unbroken shelves.
4. Used as complete liners for storage cabinets and boxes, home freeze and other special units.
5. Used to convert fountains or cabinets at a fraction of the cost of expensive new equipment.

Write today for full information. Kold-Hold engineers will be pleased to recommend the equipment best suited for your needs.

KOLD-HOLD
MANUFACTURING COMPANY
502 NORTH GRAND AVENUE
LANSING 4, MICHIGAN

ONE-PIECE COPPER SHELL Provides Greater Protection Against Leakage in the

IMPERIAL *TORPEDO* DEHYDRATOR*

Easy to refill — no bolts to unscrew, no flanges, springs or loose screens to remove before refilling. No soldering required after refilling.
Finger-type fine mesh monel metal screen, of welded construction, integral with outlet connection.
Fewer joints—assurance against leakage.
Copper and brass construction throughout.
ne piece streamlined cop- er shell provides greater rength, easier flow of efrigerant.
Filled with Silica Gel.
Brazed — no soft solder joints that might loosen.
TORPEDO
DEHYDRATOR

*YOUR BEST WEAPON IN THE WAR ON MOISTURE

Discarding old ideas of dehydrator design, Imperial pioneered the Torpedo—an entirely new dehydrator with a one-piece streamlined copper shell that provides greater strength, easier passage of refrigerant and has fewer joints. Area used for making joints is reduced to a minimum. No soft solder is used.

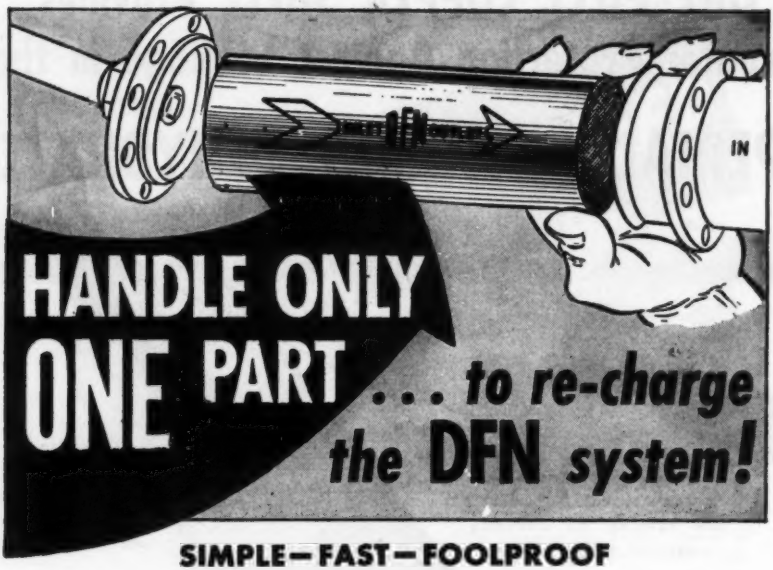
Another important advantage — the finger-type outlet screen — provides more efficient filtering, less chance of clogging, and easier removal for cleaning and refilling.

Copper and brass construction throughout. Packed with Silica Gel. Note the many features. *See your jobber.*

THE IMPERIAL BRASS MANUFACTURING COMPANY
534 South Racine Avenue • Chicago 7, Illinois

IMPERIAL

FITTINGS • VALVES • DEHYDRATORS • FILTERS • FLOATS • CHARGING LINES • TOOLS FOR CUTTING, FLARING, BENDING, COILING, PINCH-OFF, SWEDGING.



HANDLE ONLY ONE PART . . . to re-charge the DFN system!

SIMPLE—FAST—FOOLPROOF

When the long life of a DFN cartridge is ended, replacement is easy and inexpensive. Just open the flange, take old cartridge out of shell, slip in a new one, bolt it up. That's all there is to it. No disassembly and reassembly of delicate strainers, screens and filters; no handling of loose drying agents; no loss of dehydrating strength due to exposure.

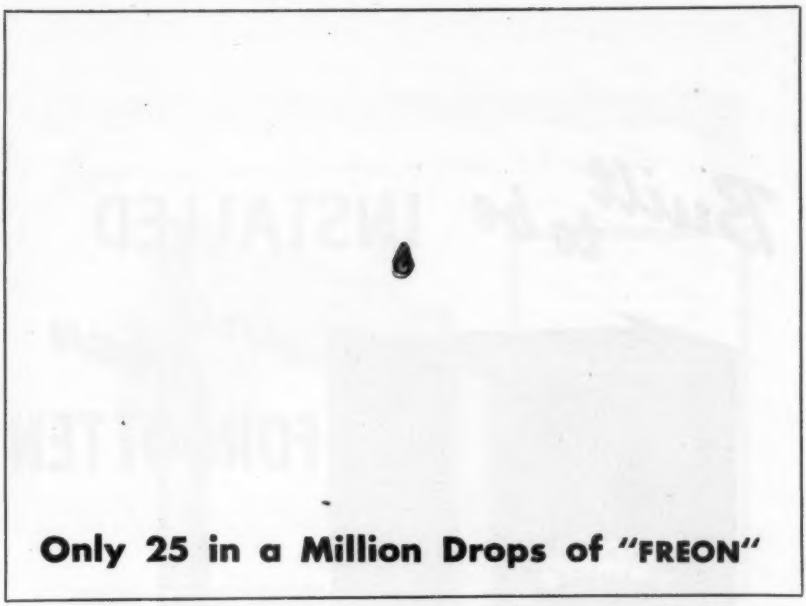
The DFN cartridge is complete . . . ready to use. It contains drier, strainer, filter . . . all scientifically factory-assembled for you. It provides full strength dehydration, because it reaches you hermetically sealed until used. The anti-sediment assembly of wire mesh, bronze wood and felt, filters to minute size—holds more sediment without pressure drop. Ask your distributor about the DFN System—or write us for catalog R-7.

WIRE MESH PRODUCTS
Monel Brass Bronze
Refrigerant, Oil and Other Liquids,
Fabricated to Specification

McINTIRE CONNECTOR CO. 255 Jefferson Street, Newark 5, N. J.

Only the **DFN** SYSTEM DEHYDRATES FILTERS

DEHYDRATORS • STRAINERS FILTERS • NEUTRALIZERS



Only 25 in a Million Drops of "FREON"

Mere drop of water . . . but it's one drop of only 25 in a million drops of liquefied "Freon"—the safe refrigerant. It represents the moisture content (1/40,000) in a pound of liquid "Freon." In a word, "Freon" is truly *dry*.

It is this dryness of "Freon" refrigerants . . . accomplished through costly, scientific methods of production . . . that has helped make possible the design of modern, compact air conditioning and refrigerating equipment.

The almost total removal of moisture from "Freon" has been a major factor in the steady advancement of the field of air conditioning and refrigeration. Its use removes the possibility of ice forming in capillary tubes, which often measure less than .031" in diameter . . . eliminating operational difficulties . . . endless servicing . . . repairs and replacements.

"Freon" refrigerants are also non-toxic, non-flammable, non-explosive, colorless and odorless. They're ideal for commercial, industrial and household air conditioning and refrigerating installations of every size. A variety of types is available to meet a wide range of requirements.

Thousands of designers and engineers use and specify no other than "Freon" refrigerants . . . they realize the importance of their safeness . . . and plan equipment to utilize them.

For specific technical information, write: Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Del.

Check these additional advantages of "FREON"—safe refrigerants

1. **Narrow boiling point range**—confined within the limits of 1/2°C.
2. **Low volume of non-condensable gases**—less than 2% in vapor phase
3. **Freedom from acids**—tests prove there are no acids in "Freon."
4. **Freedom from impurities**—high boiling impurities total less than 1/20 of 1% (.005).

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

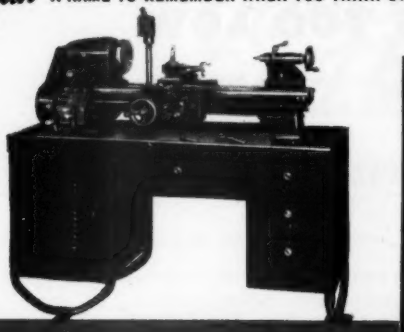
"Freon" is Kinetic's registered trade mark for its fluorine refrigerants and propellents.

Built to be **INSTALLED** *and then* **FORGOTTEN**

NO MATTER which of the controls in the complete White-Rodgers line you use, their many exclusive features are designed to relieve you of any future attention. Years of satisfactory service have proved the dependability of White-Rodgers Hydraulic-Action controls.

WHITE-RODGERS ELECTRIC CO.
ST. LOUIS 6, MISSOURI
Controls for Refrigeration • Heating • Air Conditioning

Logan A NAME TO REMEMBER WHEN YOU THINK OF **BETTER** LATHES



at these 39 points* this Logan Lathe has self-lubricating bronze bearings

LOCATION	NO. BEARINGS
Underneath Drive	8
Reverse Gear Bracket	2
Gear Box	10
Headstock	7
Automatic Apron	6
Carriage Assembly	6
TOTAL	39

*All models of Logan Lathes are similarly protected.

SELF-LUBRICATING BRONZE BEARINGS

KEEP LOGAN LATHES READY TO RUN, ADD TO SERVICE LIFE, NEED FAR LESS OILING

The use of self-lubricating bronze bearings in place of plain bearings is typical of Logan Lathe design. The self-lubricating bearings are of a special bronze that is absorbent in texture and impregnated with lubricant. As a shaft revolves in one of these bearings, the lubricant is gradually released in a self-controlled flow which keeps an even film of oil over contacting surfaces. In this way, even though the lubricant is only infrequently renewed, the bearing surfaces are protected. In addition, the spindle on every Logan Lathe revolves on precision preloaded ball bearings that never need lubrication. This sustained lubrication is another factor in the sustained accuracy and long life of Logan Lathes. Get the full story of the advantages offered by the complete line of Logan Lathes from your Logan Lathe dealer, or write for a catalog.

SPECIFICATIONS COMMON TO ALL LOGAN LATHES . . . swing over bed, 10½" . . . bed length, 43⅛" . . . size of hole through spindle, 25/32" . . . spindle nose diameter and threads per inch, 1½"—8 . . . 12 spindle speeds, 30 to 1450 rpm . . . motor, ½ hp, 1750 rpm . . . ball bearing spindle mounting . . . drum type reversing motor switch and cord . . . precision-ground ways, 2 V-ways, 2 flat-ways.

J-2-M

LOGAN ENGINEERING CO. CHICAGO 30, ILLINOIS

Brunner Refrigeration helps you serve better

IF HEAD PRESSURE IS TOO LOW

The Brunner Refrigeration Service Manual gives the following possible causes and remedies:

PROBABLE CAUSE	TEST and REMEDY
Lack of refrigerant:	Locate leak and recharge.
Leaking compressor suction and discharge valves or broken discharge valve:	Check compressor and replace or repair valves.
Safety relief valve from discharge to low pressure side of system has opened and not reseated properly:	Open relief valve and lap seat to close and seal tightly.
Very cold room or using very cold water:	If due to cold room or cold water, this is an advantage and gives greater capacity and lower power costs.
If oil separator used, there is possibility that float may stick open and blow-by from discharge to suction may result:	Open separator and free float or replace.

THE primary essentials of service are common to all refrigeration systems. Fundamentals, such as those given above, are emphasized in the Brunner Service Manual so that the basic installation and maintenance advice given will apply to the various refrigeration systems. When trouble shooting, you will find the Brunner Service Manual an invaluable aid. If you don't have one, a copy will be sent for only $2.50. Write to:

BRUNNER

For more than 40 years the Symbol of Quality

BRUNNER MANUFACTURING CO., UTICA 1, N.Y., U.S.A.

QUALITY ITEMS
IN THE REFRIGERATION FIELD
Obtain the superior performance which use of PEERLESS PRODUCTS brings to your installations. Here are products made in a wide range of sizes and capacities, constantly reliable, giving the trouble-free operation which brings you more business.
PEERLESS PRODUCTS are engineered to bring your customers the satisfaction which brings them back to you!
SOLD THROUGH LEADING REFRIGERATION SUPPLY JOBBERS
ICE CUBE MAKER
ICE CUBE MAKER
FIN COIL
FLASH COOLER
OFF-CENTER COIL
PEERLESS OF AMERICA, INC.
EXECUTIVE AND GENERAL SALES OFFICES

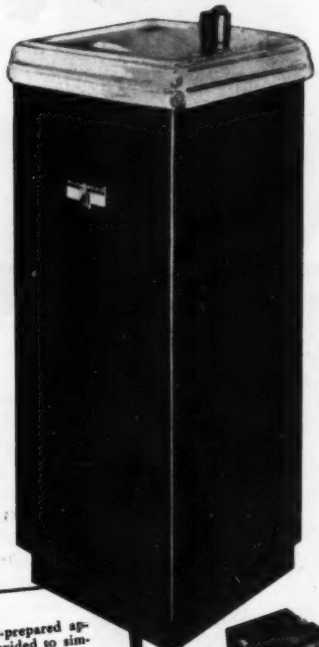
More Sales – Minimum Service
with Westinghouse Water Coolers
And the Price is RIGHT!

With the complete line of Westinghouse Water Coolers, you can meet the requirements of all your customers. For Westinghouse builds bottle coolers, standard coolers and explosion-proof coolers—models for all kinds and types of applications . . . from the small office to the busy store or factory. They are designed with an eye to your merchandising problems . . . making easier your sales, installation and service.

Westinghouse Water Coolers are practical, efficient, low-cost equipment which will satisfy the buyer and lead to more sales.

These units are powered by the famous Westinghouse hermetically-sealed refrigeration unit . . . completely sealed against dirt and moisture. Years of research and development by Westinghouse engineers assure your customers a long period of economical, trouble-free service.

A Westinghouse Water Cooler is but one of a *complete* line of *Packaged* Refrigeration Products . . . backed by effective advertising and sales helps . . . Our representative will show you our complete package portfolio of practical selling helps—The Refrigeration Specialties Handbook. A Westinghouse franchise will provide you with the sales advantages of this complete line.

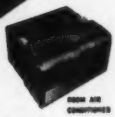


EASY TO APPLY—Complete factory-prepared application data and capacity tables provided to simplify your job.

EASY TO INSTALL—Complete *packaged* units ready to plug in—no wiring or assembling necessary.

EASY TO SERVICE—Complete and detailed factory instructions specially developed for dealer servicing —hermetically-sealed construction simplifies replacement if necessary.

FOR DETAILS about the availability of these products write to Westinghouse, 653 Page Blvd., Springfield 2, Mass.



Packaged Refrigeration by Westinghouse

WESTINGHOUSE ELECTRIC CORPORATION • REFRIGERATION SPECIALTIES DIVISION • SPRINGFIELD 2, MASS.

The RIGHT Control for EACH Application gives BEST Results!

Milk, Beverage, Water Coolers	*L480B Temperature Control*
Reach-In Meat Cases	*Polartron System of Automatic Defrosting W90 Temperature Control plus P420B Pressure Control*
Soda Fountains Ice Cream Cabinets	*P420B Pressure Control or L480B Temperature Control*
Walk-In Meat Boxes	*TA420 Frigistat plus W55A Relay plus P421B Pressure Control*
Locker Storage Units	*T414A Temperature Control plus L413A or P421B Pressure Control*
Vegetable Cases	*W90A Temperature Control plus P420B Pressure Control*
Home Freezers Low Temperature Cabinets	*L480B Temperature Control*

Other M-H Controls are readily available for all types of applications. Minneapolis-Honeywell Regulator Company, 2934 Fourth Avenue South, Minneapolis 8, Minnesota. Branches and distributing offices in all principal cities.

MINNEAPOLIS **Honeywell**

CONTROL SYSTEMS

The **POLARTRON SYSTEM** *of* **FROST FREE REFRIGERATION**

CONSTANT COMPANION FOR PARTICULAR REFRIGERATION MEN

The "take what you can get" day is about over.

With a thought of the future—as well as today—particular refrigeration men are insisting on Ranco Refrigeration Controls. They realize the inherent values of Ranco Controls—dependability, accuracy, precision construction, beauty — are increasingly important in satisfying customers . . . in winning customer recommendations and repeat business.

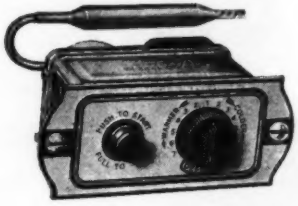
You, too, will want to make Ranco Refrigeration Controls your constant companion.

* * *

There is a Ranco Control to meet every refrigeration need—general and exact replacement for domestic and commercial use. Ask your Ranco jobber.

THESE COUNT MORE NOW

DEPENDABILITY
ACCURACY
PRECISION CONSTRUCTION
CONFIDENCE
EASE OF INSTALLATION
BEAUTY
INSIST ON Ranco



Ranco Inc.

COLUMBUS 1, OHIO

THE REFRIGERATION SERVICE ENGINEER

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IN THIS ISSUE—

George A. Sechrist of Dayton, Ohio, invested $3000 in the fall of 1931 in a small refrigeration service business. Today he is doing a $350,000 yearly gross business and expects this figure to jump to a half million when new equipment becomes available. His present business policy and plan of operation is contained on pages 23 to 28.

In this month's article entitled "Low Temperature Refrigeration" F. R. Zumbro and Terry Mitchell describe the system installed during the war for Bendix Radio Corp. and used for instrument testing. The article appears on page 29.

A large number of the service companies in a position to do so, seem reluctant to employ inexperienced service men. They don't want to be "bothered"—preferring trained men. Yet how are these men to get their training and the industry the trained men it will need shortly if no one is willing to do the job? See Don Daly's discussion of the subject on page 32.

The fourth article on "Electric Instruments—Principles of Operation" by G. F. Gardner appears on page 34. Discussion of various types of instruments such as compensated wattmeters, electrodynamic wattmeters, magnetic-vane type and others are included.

An interesting suggestion for a new application of refrigeration is offered by W. C. Hefferlin on page 37. Controlled cold to alleviate pain during surgical operations, instead of the usual anesthetics, is gaining favor in the medical field, and mechanical refrigeration is the best means of controlling the temperature according to Mr. Hefferlin.

One of the readers of the Questions and Answers, starting on page 39, has a number of small condensing units on hand and would like to use them in multiple on jobs requiring larger units. The editor cautions him against such applications.

How to make a dial indicator for your lathe is only one of the helpful hints provided in the Service Pointers this month on page 42.

A complete report of the Refrigeration Equipment Manufacturers Association meeting and the Refrigeration Equipment Wholesalers Association meeting appears on page 44.

Reports of the Seventh Annual Interprovinicial Conference, appearing on page 58, show a marked growth in R.S.E.S. activities in Canada.

New and improved appliances this month, on page 72, contains a description of a new power tool which could be termed a portable jig saw. It should be interesting to many readers.

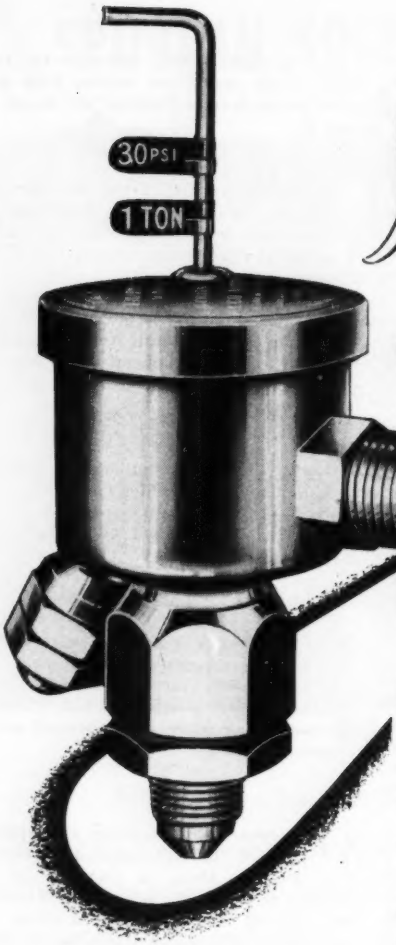
For news of service men and service companies see "News from the Dispatcher" on page 76. The column provides some indication of the new service companies being formed, largely by veterans, and of the expansion taking place in established service companies.

COVER

ONE corner of the modern, well-equipped shop of the Refrigeration Equipment Co., Dayton, Ohio, is pictured on this month's front cover. White coated mechanics, painted equipment and a clean, well kept shop lends a smart appearance and is unquestionably one of the contributing factors to the success the company is enjoying.

Specializing now in commercial and air conditioning service, the company is completing its plans for entry into the industrial field, both sales and service. Plans are also completed for considerable expansion in the commercial sales field as soon as equipment becomes available.

Serving over 45,000 customers at the present time, the company makes all equipment repairs, with the exception of major overhauls, in its own shop. See article on page 23.



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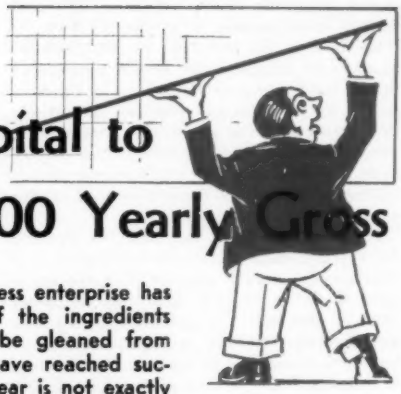
Fifteen Year Record of a Service Company

From $3000 Capital to $350,000 Yearly Gross



A formulae for success in a business enterprise has never been compiled but many of the ingredients which make up that formulae can be gleaned from the operating plans of those who have reached success. $350,000 gross business per year is not exactly small business yet that is the result of a $3000 capital investment 15 years ago, plus a good business policy.

By JAMES CLYDE PORTER

ONE of the firms in the refrigeration field today that had its start not too many years ago and in a modest way is the Refrigeration Equipment Co. of 832 S. Ludlow Street, Dayton, Ohio, owned and operated by George A. Sechrist. This firm started at a rented location back in the fall of 1931 with a modest capital of $3,000. At that time the Frigidaire people turned its commercial refrigeration business for the Dayton trading area over to this firm so, despite the modest capital, the firm started with business in the bag.

The business flourished from the start and it was not long before it was moved from its first location to a better location downtown. Again the business flourished and grew until the location ceased to be large enough for the continually expanding business.

In 1942 the building at 832 S. Ludlow Street was purchased and the firm moved into its own quarters which it still occupies. The new building is some eight blocks from the center of Dayton, close enough to be handy for everybody yet sufficiently far out so that parking facilities are not a problem. In these modern post war times when cars will soon be much more plentiful than in the prewar days this is most important to any business.

At the start, the business was strictly commercial refrigeration limited to Frigidaire. When Frigidaire brought out air conditioning equipment that line, too, was taken on for commercial distribution only. Since then Seeger refrigerators have been added as well as Victor products consisting chiefly of milk coolers and the Sanitary Scale line. While doing strictly a commercial business the firm does sell to builders and apartment house owners who, buy in quantities for buildings under construction or for apartment houses operated by them.

From the modest beginning in 1931, only fifteen years ago, the business has grown until last year the gross volume was over $350,000 and would have been considerably greater if equipment had been available. This year, if equipment comes through, Mr. Sechrist figures he can do a business in excess of half a million dollars but, he wisely adds to this that he hardly expects the equipment to be available in sufficient quantities and early enough in the year to enable his firm to reach that business level.

It is interesting to note the breakup of last year's business to show how it was distributed between service and sales both of refrigeration and air conditioning equipment. Of the better than $350,000 business done, about $100,000 was for service. About $100,000 represented air conditioning business with the rest, a little over $150,000 being for refrigeration equipment.

Today this firm covers Dayton and Montgomery Counties and in the City of Dayton is the only authorized Frigidaire service station for both refrigeration and air condi-

tioning equipment. As soon as the manpower situation clears up and additional service men become available or can be trained, it is the intention of Mr. Sechrist to make his firm's service facilities available for all commercial refrigeration in the area served by the firm and possibly for domestic refrigeration servicing, too. Today, however, besides servicing commercial equipment, the firm also services domestic installations of Frigidaire dealers located in this area.

It is evident from this that the demand for refrigeration service in the Dayton and Montgomery area is greater than the available facilities of this firm and of other firms in this line. In order to put his firm into condition to take on additional servicing work as quickly as possible, Mr. Sechrist is training four Ex-GI's under the G.I. Bill of Rights for service men and will take on an additional two or three as soon as he finds the right men. At this stage in the training program the former soldiers give every indication of developing into expert service men well able to partially remedy, at least, the service man shortage that this firm is experiencing and has experienced during the war period.

Advertising

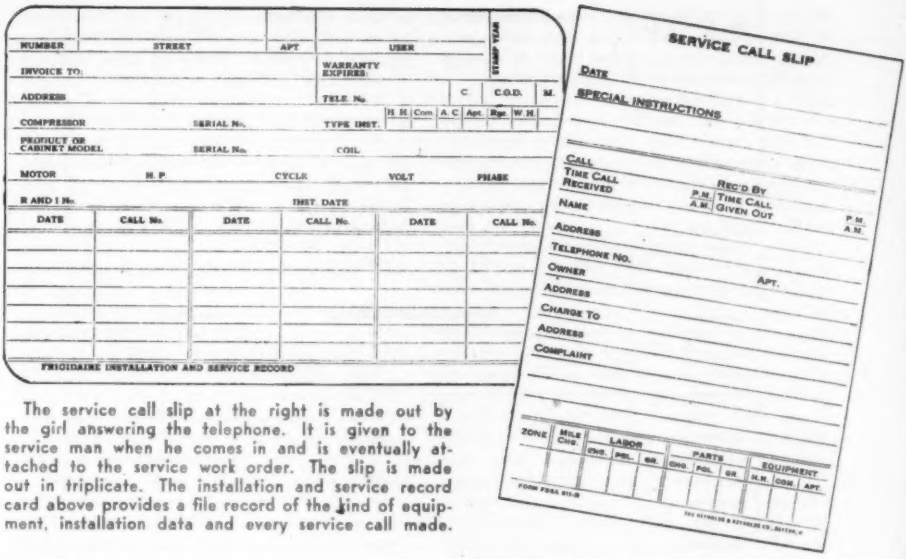
The firm has not done any advertising of a service nature during the war for the reason that its service facilities have been heavily taxed without advertising. Until additional service men are available Mr. Sechrist intends to lay off of advertising the service end of the business. And what is true of service advertising is also true of equipment advertising. For the past four years equipment has been at such a premium that he felt it would only make enemies instead of friends to continue to advertise something that was not available. So he has done practically no advertising during this period. The single exception is the yellow pages of the local telephone directory where he runs a continuous advertisement and sometimes two in every issue. This advertising he finds does serve to keep his name before the public and gives him something to tie up to when equipment and service facilities again are sufficient to warrent an advertising campaign to promote the business in general.

The firm maintains two card files of customers. One card file is of commercial customers that the firm has sold. The other is of domestic customers sent to this firm by Frigidaire dealers in the territory who cannot service the equipment they sell. These customer cards have spaces for the entrance of every necesary detail of the sale. In addition there is a space for the entrance of information regarding every service call made so that each customer card becomes a complete record of that piece of equipment even to the last service call made. The filing of these customer cards is a bit unusual. They are filed by Streets, and by house or business premise number, the filing being numerically under the building number and alphabetically by streets. In entering the service calls made, two informational items are entered, the date of the call and the service call number which number will be explained when the routine of handling service calls is explained.

Service Call Routine

The routine of handling service calls is most thorough and complete. When a service call comes into the service department, the girl answering the telephone on such calls, pulls that customer's card and has it before her while she is talking to the customer. By doing this she can talk intelligently about the call and the equipment to be serviced because she has all of the data right before her.

For all service calls the firm uses a form, printed four up on a sheet and perforated between each of the four duplicate forms. This form is in triplicate, the original being white, the duplicate being pink and the triplicate yellow. As the customer tells the service call girl what is wanted she makes out a Service Call Slip in triplicate. The numbering of these Service Call Slips is one followed by many concerns. A compound number is used, the first part of the number representing the month, as for instance 4 would represent April and twelve would represent December and so on. This first part of the compound number is followed by a hyphen after which there is another number. At the beginning of each month the service calls for that month are numbered numerically beginning with 1 for the first one received and continuing numerically until the last call is received on the last day of the month. Thus 4-234 would indicate that the service call was the 234th received in the month of April. This is the number entered on the customer card. In case details of a service call are later desired it is an easy matter to refer to the Service Work Record by number, which record will be presently explained.



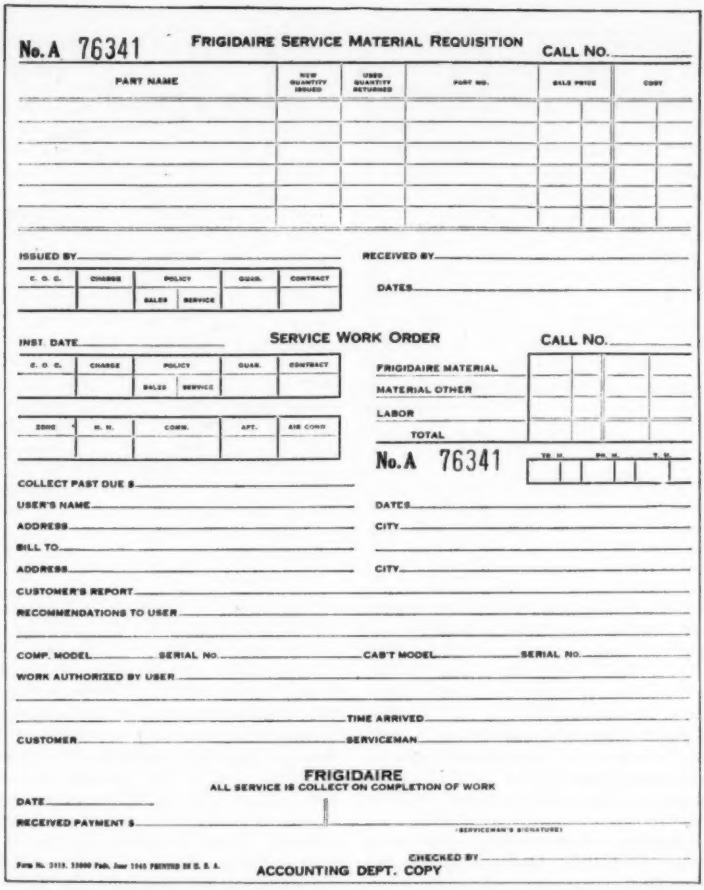
The service call slip at the right is made out by the girl answering the telephone. It is given to the service man when he comes in and is eventually attached to the service work order. The slip is made out in triplicate. The installation and service record card above provides a file record of the kind of equipment, installation data and every service call made.

The distribution or use of the three copies of every Service Call Slip is interesting. The original remains in the service office where it is filed under the name of the service man who is given that call. That remains in the office so that the service office always knows how many service calls each man has been given. The duplicate goes to the service man himself who uses it to map out his service calls and to know what to do when he gets to a customer's home or place of business. The triplicate remains in the service office, being filed numerically by service call number for reference when needed.

After the service man has completed his service call he makes out, while still at the job, a form known as the Service Work Order. This, too, is in triplicate and has carbon sheets provided, each set of three copies being a separate unit. This Service Work Order is a complete record of the service job, materials used and work done. The white original is returned to the general office for accounting purposes and later filed numerically by service call number. The pink duplicate goes to stock room where it is used to check materials used against materials taken out on a memo and also against unused stock returned by the service man. Thus there is a stock control with a minimum of detail. The yellow triplicate goes to the customer, signed by the service man if the job is paid for on completion and signed by the customer if the job is not paid for when finished.

The original and duplicate of this Service Work Order is turned into the service office by the service man. There the white original is separated from the pink duplicate and the Service Call Slip stapled to the original before it is sent to the general office of the firm. The pink duplicate is then sent on to the stock room for use as previously explained. Thus the filed original of every Service Work Order has stapled to it the little white original of the Service Call Slip.

The firm employs fourteen service men which force will be expanded, as explained, as rapidly as possible. The service men are paid on an hourly basis at rates ranging from $1.00 to $1.65 per hour depending on experience and ability. The work week is based on a forty hour week with time and a half for all overtime. The men are employed the year around so as not to break up the service organization. During the summer months when business is unusually active the service men will work from sixty to sixty-five hours a week with all hours over forty being figured at time and a half. During the off season, the winter months, when service business is greatly lessened, the men will be given odd jobs at the shop, sometimes, nothing more than painting to keep them employed for a full forty hours



No. A 76341 FRIGIDAIRE SERVICE MATERIAL REQUISITION CALL NO.

PART NAME	NEW QUANTITY ISSUED	USED QUANTITY RETURNED	PART NO.	SALE PRICE	COST

ISSUED BY RECEIVED BY

C. O. D.	CHARGE	POLICY		GUAR.	CONTRACT
		SALES	SERVICE		

DATES

INST. DATE SERVICE WORK ORDER CALL NO.

C. O. D.	CHARGE	POLICY		GUAR.	CONTRACT
		SALES	SERVICE		

ZONE	M. H.	CONN.	APT.	AIR COND

FRIGIDAIRE MATERIAL
MATERIAL OTHER
LABOR
TOTAL

No. A 76341

TR. H.	PR. H.	T. H.

COLLECT PAST DUE $
USER'S NAME DATES
ADDRESS CITY
BILL TO
ADDRESS CITY
CUSTOMER'S REPORT
RECOMMENDATIONS TO USER
COMP. MODEL SERIAL NO. CAB'T MODEL SERIAL NO.
WORK AUTHORIZED BY USER
TIME ARRIVED
CUSTOMER SERVICEMAN

FRIGIDAIRE
ALL SERVICE IS COLLECT ON COMPLETION OF WORK

DATE
RECEIVED PAYMENT $
(SERVICEMAN'S SIGNATURE)

Form No. 2113. 15000 Pads. June 1945 PRINTED IN U. S. A. CHECKED BY
ACCOUNTING DEPT. COPY

The company uses the Frigidaire service record system and above is the service work order form, which is made out in triplicate. One copy goes to the customer, one to the service records and the original to accounting.

and so enabling them to draw their regular forty hour week wage. Each service man owns his own car. The firm allows him $50.00 a month for car usage with the service man furnishing everything. In addition to this fifty dollar car allowance he is allowed a mileage expense of six cents per mile for all mileage beyond a ten mile limit from Dayton. Thus a service man who goes fifteen miles out from Dayton on a service call would collect mileage for five miles each way the ten miles being figured in on the fifty dollar a month car allowance.

This, however, is not all that is done for the service men. Each man is given a 5% commission on all collections he makes and in cases where he makes a sale or even turns in a hot prospect for a piece of equipment, he gets a 5% commission on that sale, but, naturally, nothing on the collection for the sale when made. Even if a salesman for the firm works on the sale, if it is a hot prospect and the sale is made reasonably soon the service man gets his 5% commission. These two commissions materially add to the service man's intake.

Apart from all of this the service men share in a bonus plan used by the firm

which will be explained presently.

The service men for this firm earn on an average from $4,000 to $5,000 per year including their regular wage and commissions.

The bonus just mentioned is shared in by all employees. It varies from year to year and is not any set amount. It is based entirely on what sort of a year the firm had and what profits were made but the bonuses will range from a low of $25.00 to a high of $1,000. The amount each employee gets is determined by Mr. Sechrist and is based on length of service and value of employee to the firm.

Besides the employees already mentioned this firm has one stock room man, an office manager, a bookkeeper and a call clerk both girls, a commercial refrigeration engineer and three air conditioning engineers who also work as salesmen at present. The firm intends to expand this force with salesmen who are not trained engineers just as soon as equipment comes through so that there will be something for them to sell.

The firm maintains a fixed service rate scale with the first eighteen minutes of service work on the job being charged for at $2.00. All time after eighteen minutes spent on the job is charged for at the rate of $2.50 per hour, the hour being split in ten equal parts and service jobs charged only for the actual tenth parts of the hour spent on the job. The first hour, then, figures out at $3.75 with $2.00 being the minimum charge.

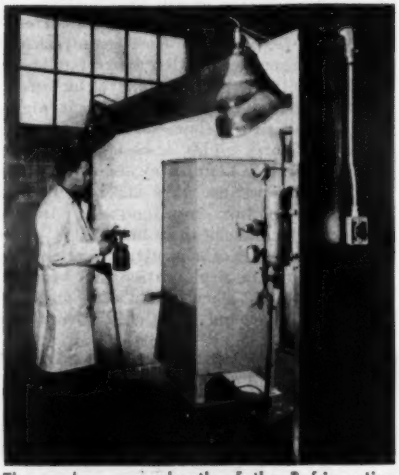
In order to keep the service men efficient, a service school is operated twice a year on the firm's time. These two schools are operated in the fall and winter, the fall school being for servicing of household units and the winter school for servicing commercial units. That time of the year is chosen because the men are not so busy. Each school runs for a week, six days a week, eight hours a day. The manufacturers of the equipment handled send in experts to instruct the men and give them a speeded up training course in the week's time. In addition to these, the firm operates refresher courses from time to time to refresh the service men on details they know but about which they may have become a bit rusty. These refresher courses are held at night, also on the firm's time, and run for two weeks and three nights a week.

The firm has kept away from contract service jobs because they do not fit into the service picture any too well. In the summer when business is brisk it is often difficult to take care of contract service jobs unless one has an organization that becomes much too large when the winter or slack season comes around. So the firm has taken

To keep the men up-to-date on new equipment and to train new men, the company conducts classes in refrigeration at regular intervals each year. G.I.'s being trained at the present time are receiving much of their knowledge through these classes.

no more contract service jobs than necessary. Only from 5% to 10% of the service business of this firm is on a contract basis and that mostly for large institutions such as hospitals and the like. However, Mr. Sechrist is of the opinion that contract service is a matter of the future and that sooner or later all firms that wish to keep abreast of the times in business will have to come to it whether they like it or not. But until he is forced to go to it in a bigger way he is not pushing the idea.

One thing that has materially helped this firm to build its present large business and especially its service business is the fact that



The modern spray booth of the Refrigeration Equipment Co., used for refinishing cabinets and spraying parts.

it stocks a full line of parts for every piece of equipment it sells and services. Its stock of parts for refrigeration equipment alone will inventory at over $20,000. As fast as parts are drawn from stock for use in service jobs, replacement parts are ordered so that at no time does the inventory drop below this level.

The firm maintains a most complete shop (see front cover) with facilities to do all minor repair work. It has a modern charging board, a spray room with baking chamber for doing enamel work besides the usual equipment found in modern shops of this sort. It repairs compressor bodies and puts in new rings and pistons but major repairs are not done in their own shop. In cases where major repairs are needed, the part is sent to the factory for such work. Neither is any motor winding done, it having been found that this work can be done right in Dayton in specialized shops much cheaper than it possibly could be done by the firm. It makes no attempt to repair hermetic units, sending all of these to the factory for repair.

Its policy on component parts is to take the part off of the customer's equipment and replace it with another part that is in perfect working condition. The price quoted is for this substitution. The part taken off is then serviced and put into stock against the day when some customer will need it. In no instance is a component part taken off serviced and then replaced on the same piece of equipment.

A rather unusual service offered by this firm is the maintainance of a cold room with 200 cubic feet of storage space and in which the temperature is kept at zero. This cold room is for the benefit of customers whose equipment goes bad for some reason and where repairs cannot be made at once. To prevent food stored in such customer's equipment from spoiling, the food is brought to this firm's cold room and stored there without cost to the customer until the customer's equipment is repaired when it is transferred to the customer's equipment. In addition to making this service available to its customers, employees of the firm are also allowed to keep foods in this cold room, taking such as they need out when they need it.

Some idea of the business that this firm has built up in its fifteen years of business life may be had from the fact that today it has over 45,000 refrigeration units out in its territory with only a lack of supply preventing this number from being very materially increased.

Mr. Sechrist sees a big future for industrial refrigeration as opposed to commercial refrigeration and so without withdrawing any energy now being spent in the commercial refrigeration field he is working out plans to go after the industrial end of refrigeration in a big way so that his story within the next few years may be even better than is his story today. He believes that industrial refrigeration is the big thing of the next few years.

His engineering staff, already mentioned, is housed in its own rooms on the second floor of the business premises and is skilled equal to any to be found anywhere in the country in its line. With this as a basis Mr. Sechrist believes that he can develop his business along more engineering lines than along purely selling lines.

Low-Temperature Refrigeration

BY F. R. ZUMBRO AND TERRY MITCHELL*

Article Three

An interesting refrigeration plant installed during the war was that built for Bendix Radio Corp. and used for research and test work with radar and other equipment. The system comprises three low temperature rooms described in this article.

AT THE Friez instrument plant of the Bendix Corporation in Towson, Md., the box shown in Fig. 8 has been in use since 1943. A two-stage Freon-22 system produces temperatures here of 120 and even 130 deg. below zero F. This cold box, which is really a cylinder jacketed with Freon-22, is used for calibrating the Radiosonde instruments which are sent up into the air (as high as 80,000 ft.) under a balloon as illustrated in Fig. 7. The pressure inside the cold cylinder can be lowered by means of vacuum pumps after the door, which contains 6 layers of plate glass, is clamped tightly on the gasket. What air remains in the jacketed cylinder is kept in motion by the fan at the back; the air passes over the instrument being tested and returns over the finned coils which are between the inner lining and the cylinder.

The duty here is less than 1 ton of refrigeration. The first-stage compressor is a 7¼ by 5 running at 600 rpm., and at a ratio of 9 to 1. The suction pressure falls down to 1.6 lb. absolute. The second-stage machine is a 4 by 4 two-cylinder combined unit running at 800 rpm.; suction pressure zero lb. gauge; ratio 12.6 to 1. The success of this installation, which uses the same method of "bucking" the cold with electric heat until the exact conditions are obtained, was the basis on which the larger Bendix plant, described below, was built. Both were designed and installed by the Paul J. Vincent Company, of Baltimore.

A most unusual job is to be found in low-temperature test rooms of the Bendix Radio Division of Bendix Aviation, at Towson, Md. (Fig. 9). The way in which these three rooms were constructed was this: a heavy steel framework supports the doors and outer walls, while a lighter framework supports the stainless steel inner walls, floors and ceilings with which each room is lined: Foamglass insulation, 12 inches thick on two of the rooms and 18 inches thick on the third, was applied. The machine room is in a pit below the three test rooms, there being no other space available. Each room has an air lock just inside the door where people enter. Each room also has a very large door, 6 ft. by 8 ft. in the clear, for moving in heavy equipment.

Automatic controls of such remarkable efficiency were applied to this job that the temperature and humidity are held constant

Fig. 7—Balloon carrying parachute and Bendix-Friez Radiosonde aloft for "weather" reports.

*Frick Company, Waynesboro, Pennsylvania

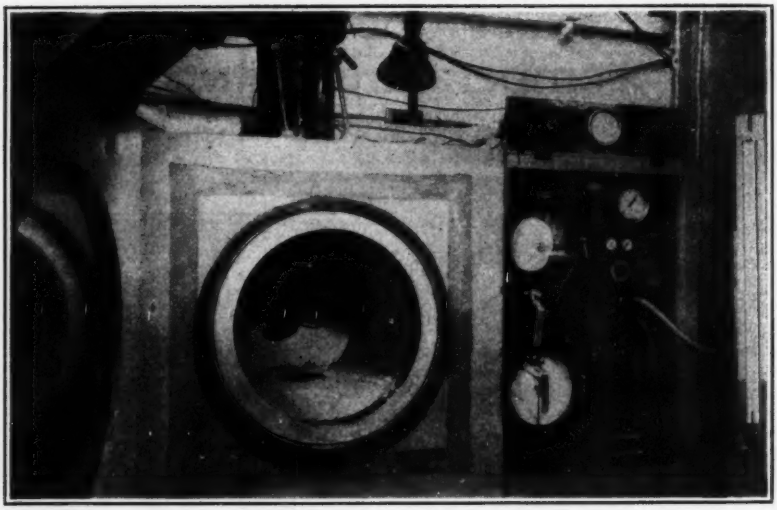


Fig. 8—Temperature-pressure chamber at the Friez plant of Bendix Aviation for calibrating Radiosonde instruments: can go down to —120 or —130 deg. F.

to a high degree of accuracy. The temperature stays within ¾ of one degree F., and the humidity within 1¼ per cent.

The room in the center is arranged to have a constant temperature of 122 deg. F. and a constant humidity of 95 per cent, maintained for as long as wanted. The switches controlling this room are merely marked "on" and "off".

The room at the far right is controlled by two program clocks, one for the temperature and one for the humidity. The range of temperature is from 68 deg. F. to 154.4 deg. F.; the humidity from 10 to 95 per cent. The clocks can be set so that any given temperature and humidity will be held for a certain number of hours, then the controls will throw over to another set of conditions and later repeat the cycle. For that reason this is called the cycling room. It will also give varying degrees of temperature while retaining constant relative humidity. Or, the percentage of humidity may be varied while the temperature is held constant.

Fig. 10—Booster and second-stage compressors handling Freon-22 at the Bendix Radio test plant. Note jacketed cylinder on booster.

The third is the high-low-temperature

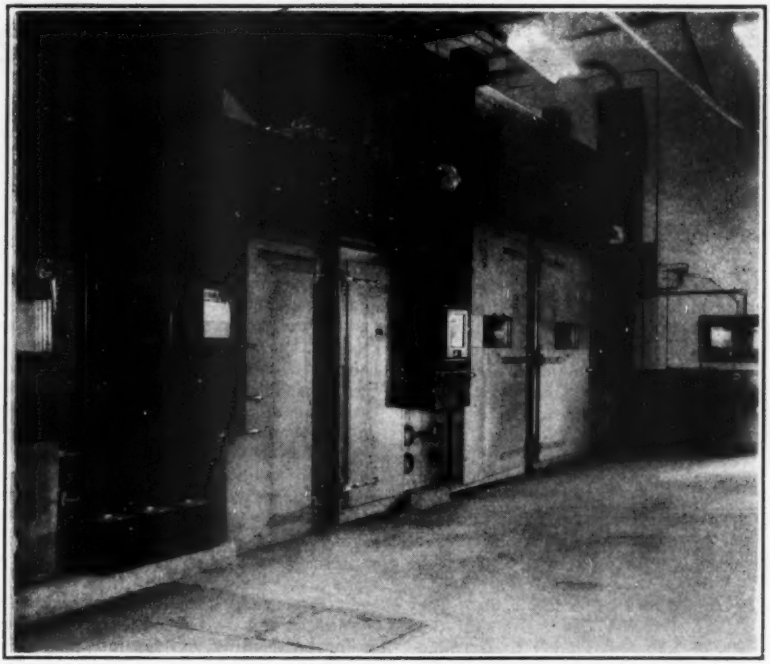


Fig. 9—Complete 3-room test plant at Bendix Radio Division, Towson, Maryland—one of the most remarkable low-temperature installations ever made.

room, and is capable of maintaining temperatures from plus 194 deg. F. to minus 76, or less.

Humidity is added to the air in the rooms by injecting moisture from nozzles with compressed air. At high temperatures and humidities it is practically raining, and the moisture is condensed on the body of the person entering the room, until it runs off in streams. The operator wears a bathing suit. Electrically heated clothes and the warmest fleece-lined outer garments of leather, complete with helmet and hood to prevent freezing of the eyeballs, are worn in the low-temperature room.

The controls first regulate the temperature in each room and later adjust the humidity, or the two conditions can be changed simultaneously. The refrigerating equipment runs continuously once it has been set, and the ultimate fine adjustment in temperature is gotten by adding electric or steam heat. This is indicated by the change in potential of electric current from a special thermostat. The controls are a combination of compressed air and electric apparatus installed by the Johnson Service Company. The Foxboro Company also worked with the others concerned in perfecting means of handling all these varied conditions by push buttons and switches, and in recording the results on roller strip charts. Transformers provide any voltage wanted, up to 30,000.

The refrigerating equipment consists of an 8¾ by 6 booster machine handling Freon-22, discharging through a gas-and-liquid cooler into a 7 by 7 compressor. The 7 by 7 can be operated independently on a shell and tube brine cooler; the cold brine is used in the cycling room. The total connected load on the two machines is 80 hp., but the cooling load runs between 4 and 6 tons.

(Concluded)

S S S

"Once properly frozen, most foods can be kept indefinitely at mechanically produced temperatures. When prepared and eaten, they have the same taste, quality and nutritive value as when they were fresh."

Let's Teach Him the Trade

There are quite a number of new men anxious to enter the Service field today—and they will be needed. Trained men will be scarce and in high demand when industry starts rolling—but how are the new men going to develop into trained men without your aid?

By DONALD F. DALY

THE next year will see a tremendous increase in the number of large low pressure refrigeration plants being installed. As soon as the equipment and the buildings that are to house these new plants are available the boom will be on. This means lots of jobs for the service and installation man. Where there was one large low pressure refrigeration plant in the past there will be ten in the future. Plants of all kinds, air conditioning, locker storage, frozen food, cold storage warehouses, and industrial plants of all sorts. This means plenty of installation, operation, and service jobs to be filled. I doubt very much if there will be enough trained men to fill these jobs. They will require a higher degree of skill than most service jobs and I don't think enough trained men are available. They were not available before the war and I don't think they were trained during the war when the trend was to specialization rather than to the development of all around mechanics.

War Work Too Specialized

Of course there were a lot of men doing this work during the war—in the Army and Navy and in the ship building industry, but in most cases these men were trained in only a few of the operations necessary to the erecting, operating, and servicing of such plants. Let's examine the conditions under which these men worked during the war. In most cases they did not have previous training or experience. They were brought into the work to fill a demand created by the enormous expansion in the number of large low pressure plants being installed.

This expansion posed a very difficult problem for the men responsible for the installation and operation of these new plants. At one time we were doing very large and very complicated installations with ninety per cent green men. Since there wasn't time to train these men in all of the operations necessary to do this type of work, the only solution was to specialize. The usual procedure was to take the few qualified men available and make them supervisors. These supervisors were then made responsible for a certain section of the work. We had gangs hanging and hooking up pipe coils, running liquid and suction lines, bending pipe, fabricating manifolds, testing for leaks, and so on throughout all the operations of erecting testing, and operating a large plant. We had other gangs working on small commercial and package units, such as reach-ins, water coolers, ice cream cabinets, domestics, etc.

All 'Round Training Needed

In most cases these men never learned more than one or two of these operations. A few of them did develop into pretty fair mechanics on that particular type of plant, but in most cases they remained specialists, able to do only one or two specialized jobs. This was true in the ship building industry and it must have been true, to a certain extent, of the Army and Navy. They had approximately the same problem that we had. There just wasn't time to train these men in all of the operations, so they were taught specialized jobs. It wasn't the fault of these men that they did not learn all of the operations. It was just that conditions would not allow a different course of action. Of course a few of these men did develop into fine mechanics, especially where they had some previous experience or a mechanical background in some kindred craft.

A great many of these men will want to stay in the refrigeration trades, and it is to the advantage of every one in the industry to have them stay. They have had from one to three years of specialized training and it will require only a few months of intensive effort to develop them into fully qualified mechanics who will be a credit and an asset to the industry.

This is where the qualified mechanic now working in the trade has an opportunity to do a great service to every user of refrigera-

tion equipment and for every one connected with the industry. He can also do a great service for our returning war veterans—by taking on part of the responsibility for training these men. If every qualified man now working in the trade will take under his wing one or more of the war veterans and ex war workers who have had specialized training in refrigeration, and make it his job to see that they are developed into fully qualified mechanics, we will soon have a large number of well trained men working in the field. This is to the advantage of every one in the industry.

How to Train Him

He can accomplish this by imparting to these men, as fast as they are able to absorb it, every bit of knowledge, every bit of skill, and every trick-of-the-trade that he has learned in all of his years at the business. If this is done the time required to train these men can be cut by as much as seventy-five per cent. It isn't going to be easy for these men, especially the older men who have served a long and hard apprenticeship, to give up their hard won knowledge and tricks. The tendency has been to guard this knowledge and these tricks-of-the-trade jealously. The attitude has always been—"To hell with the other guy. Let him get his experience the same way I did. The hard way. That is the only way I can protect my job and my earning power." This may have been the right attitude at one time, but it certainly will not work today. The need for trained men is too great. There are not at the present time enough trained men available to fill the jobs that are going to be open in the very near future. Some one has to take the responsibility for training these men. And this offers an excellent opportunity for the refrigeration mechanic in particular, and the industry as a whole, to do something for the men who have been fighting the war.

Few of us seem to realize how acute this shortage of trained men will be. Of course there will be plenty of half trained men available, but the men who can go out and supervise every operation of erecting and testing these larger low pressure plants will be few and far between. I believe that contractors and distributors are going to find that this shortage exists when they attempt to find fully qualified men to do the installation and service work on these new plants. Installation and service on these new and larger plants is a highly skilled craft, and requires more skill and technical knowledge than almost any other trade. It takes a long time to acquire the necessary know-how to handle one of the better jobs in this field. Even in one of its specialized branches. Business will soon be back on a competitive basis, and the need for all around refrigeration mechanics will be very necessary. During the war when cost was no object it was possible to operate with half trained men. There wasn't any alternative. But under competitive conditions cost will be the principal factor and this need will be very evident.

There isn't any place in the post war refrigeration field for half trained men. Many of these new plants will represent an investment of thousands of dollars. It just isn't in the cards for this work to be trusted to half trained mechanics. If the work is trusted to such men it will mean a lot of disgruntled owners and a black eye to the industry. To say nothing of the contractors who will take a beating in trying to compete with such men on their payroll. Therefore, it is absolutely essential that attention be paid to the training of these war veterans and ex war workers. With them it is only a question of rounding out their experience. Which is a lot better and quicker than starting from scratch with green men.

Full Employment for Good Men

The man who is really qualified for his work will have nothing to worry about as far as getting and keeping a job is concerned. But he has much to worry about in the quality and quantity of competition he will have to meet. If most of the men who are to be used in this work were fully qualified it would be a great help to every one. Unfortunately most of them will be entering the trade with little understanding of its requirements. The inevitable result will be that the standard of skill and efficiency for the whole craft will be low. Where the average standard of skill and efficiency of a craft is low, every member of that craft suffers a loss of prestige and of earning power. It doesn't matter that some of the men are well trained and highly skilled. They will suffer the same loss as their less efficient brothers.

It would be to the advantage of every one in the industry to co-operate in some sort of training program with the idea of creating a large pool of fully qualified mechanics. It

(Continued on page 50)

ELECTRIC INSTRUMENTS

Article Four

Principles of Operation

Construction and Operation of Compensated Wattmeters

By G. F. GARDENER*

IF WE made a wattmeter having an auxiliary current winding (each wire of this auxiliary winding lying alongside each wire of the regular current-coil winding, and having the same number of turns as the current-coil winding) but connected it in reverse direction and in series with the potential coil as shown in Fig. 24, we should have what is known as a compensating wattmeter. For an example of its principle of operation, consider the following. Connect this compensating wattmeter as shown in Fig. 25. Now the only current which flows through the current coil is that taken by the potential circuit, and this flows through the compensating winding as well. Since the two windings are opposite in direction, the field of the fixed coils is zero, and no deflection of the wattmeter pointer occurs. When we close the load switch, the instrument will indicate the correct value of watts, since it automatically subtracts the watts required by the potential circuit. It is obvious that compensating wattmeters must be carefully connected in the circuit according to the diagram furnished by the manufacturer.

Compensating wattmeters are often provided with an auxiliary compensating winding know as a voltmeter winding. This consists of an additional winding subtractive as before, so arranged as to be used with a special voltmeter which is located as shown in Fig. 26. When a voltmeter is inserted in the line at the points provided, the voltmeter current flows through its compensating winding and automatically subtracts the watts taken by the voltmeter. The voltmeter used for this class of work is usually especially calibrated for this service, since the compensating winding possesses some resistance. This must be considered when calibrating the voltmeter.

So far in our study of instruments, we have considered only two classes—the permanent-magnet moving coil, and the dynamometer types. In recent years, the im-

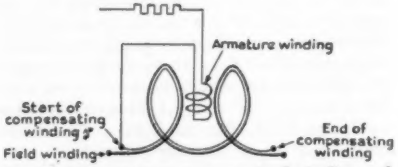


Fig. 24. Schematic arrangement of windings of compensating wattmeter

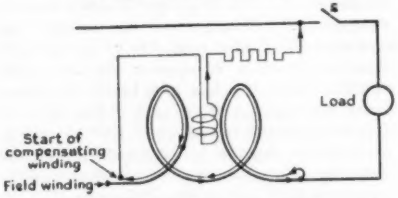


Fig. 25. Illustrating action of compensating wattmeter

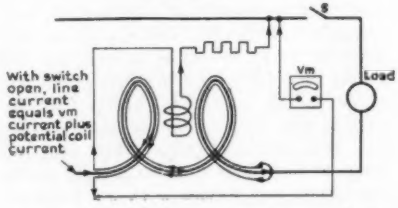


Fig. 26. Illustrating action of compensating wattmeter having voltmeter winding

*General Engineering and Consulting Laboratory, General Electric Co., Schenectady, N. Y.

provements in magnetic materials have made modification of the dynamometer type possible, resulting in better characteristics for many classes of work. For example, it has been found possible to add iron to the field structure of dynamometer instruments, to change the coil geometry, and to utilize the general construction as shown in Fig. 27.

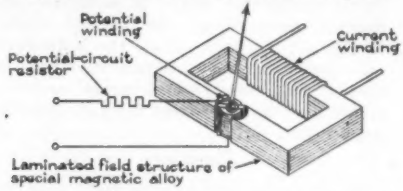


Fig. 27. Schematic construction of electrodynamic wattmeter

This is called the electro-dynamic type, and has found considerable favor in small, compact instruments for general testing where intermediate accuracy is desired. The space necessary for an element having the desired torque is considerably smaller than that required in the dynamometer, and its power consumption for a given torque is also less. A wattmeter of the electro-dynamic type, typical of those used for general testing purposes, is shown in Fig. 28.

Magnetic-vane Type

Another type of instrument construction often used for alternating-current ammeters, and to a considerable extent for voltmeters, is the magnetic-vane attraction type. This probably is adaptable to the greatest number of modifications of any of the instrument types. A few of the common ones will be described here. One of the simple ways to make a magnetic-vane attraction instrument is to arrange a construction as

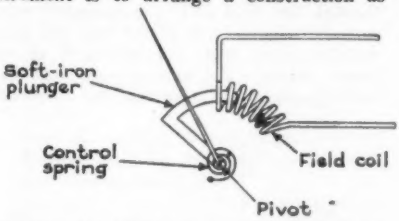


Fig. 29. Schematic diagram of simple magnetic-vane attraction-type instrument

shown in Fig. 29. When current is sent through the solenoid, the plunger is drawn into the coil, and a measurable deflection of the instrument pointer is obtained. As a matter of fact, such arrangements are used for the less-expensive class of instruments. The scale, however, leaves much to be desired from the standpoint of uniformity, the power consumption is high and such an instrument is likely to be very sensitive to slight zero shifts. The worst objection, however, applies to length of scale.

One rather ingenious method of obtaining a reasonably long scale is to use a construction such as shown in Fig. 30. Incidentally, this construction overcomes many of the other shortcomings, and is used in high-grade instruments. If the reader will study this carefully, he will note that both the coil and moving vane are inclined at an angle to each other, and that, theoretically,

Fig. 28. Type AP-9 electrodynamic wattmeter

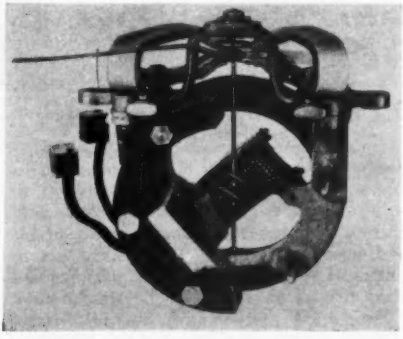


Fig. 30. Essential parts of an inclined-coil attraction-type instrument

the instrument pointer could have a movement of almost 180 degrees. See Fig 31.

Another very important class of magnetic-vane type of instrument is the magnetic-vane repulsion type. A schematic view of this type of construction is shown in Fig. 32. In operation, suppose a direct current is sent through the field coil; the magnetic vane embedded in the side of the coil will have definite poles, N-S, induced in it at the points shown. The moving vane will also be magnetized by induction, the polarities being N-S, as shown. It will be noted that the north pole of the moving vane is nearest to the north pole on the piece of magnetic material embedded in the coil, and the south poles are similarly placed. Hence, the vane tends to move away or to be repelled from the stationary magnetic piece. If alternating current is applied to the instrument, the two vanes will simultaneously change polarities as the current varies throughout the cycle; thus, the instrument also operates on alternating current. In fact, it is in alternating-current measurements that the instrument finds its greatest application.

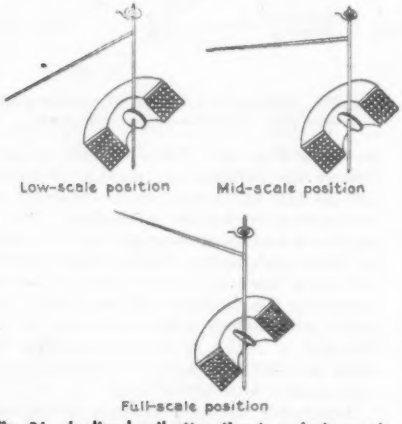


Fig. 31. Inclined-coil attraction-type instrument

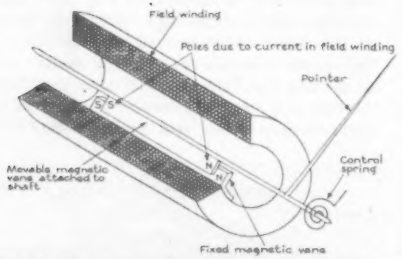


Fig. 32. Elementary diagram—simple magnetic-vane repulsion-type instrument

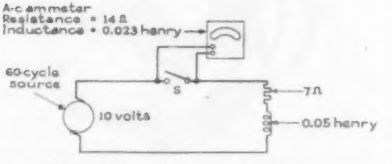


Fig. 33. Measuring circuit in which impedance of alternating-current ammeter is major consideration

Damping

To obtain damping on magnetic-vane repulsion instruments, it is nearly always necessary to resort to air damping, since the instrument is appreciably affected by any stray field from the permanent magnet used in connection with magnetic-type damping. The magnetic-vane attraction instrument, previously described, generally employs magnetic damping.

The older type of magnetic-vane instruments was equipped with an especially selected grade of soft iron for the vane. But, when these instruments were used on direct current, variable errors resulted because of a magnetic condition known as hysteresis in the vane. A special nickel-iron alloy, known as Permalloy, which is almost entirely free from this condition, is used in the vanes of modern-type magnetic-vane instruments. For this reason, the modern type of magnetic-vane instrument can be used with very good accuracy on direct current, provided that the average of direct and reverse readings is taken.

In the construction of magnetic-vane instruments, it is general practice to send the entire current through the field coil. The energy consumption varies considerably with the rating of the instrument being used. And while the resistance of most magnetic-vane ammeters may not seriously alter the conditions of an alternating-current circuit, it may cause appreciable disturbance of circuit conditions when instruments of low-current rating are used. For example, a magnetic-vane instrument of the inclined-coil attraction type rated 5 amperes, has a resistance of 0.061 ohm and an inductance of 90 microhenries. At 60 cycles, the reactance of the instrument amounts to 0.034 ohm, resulting in an impedance of 0.07 ohm. For most applications, the addition of this im-

(Continued on page 50)

Refrigeration for Controlled Cold Anesthesia

A SUGGESTION TO THE FIELD

By W. C. HEFFERLIN

IT IS becoming more and more evident that cold anesthesia is one of the coming tools of the medical and surgical profession. The results reported thus far hold great promise.

It is also noticeable from the tone of the articles written in reference to it, that to date with the possible exception of one manufacturer's product, they have had to get along with make-shift apparatus and haphazard methods of applications, leaving much to be desired by them.

Inasmuch as the requirements of the medical profession are definitely specialized, and their plea to the refrigeration industry has lacked fulfillment, we feel it our duty to move forward with the system design, called by us "Controlled Cold," and "Controlled Cold Anesthesia Machine," as presented to the War Department during War time, which we had hoped would be of use and benefit to the boys.

Doctors Require Flexibility

Doctors require apparatus of precision and would prefer flexibility included. The secret of future successful use of cold anesthesia is the exacting degree of temperature, steadily maintained within a possible variation of plus or minus two degrees. This can be obtained by the use of the "Controlled Cold" system, a precision method of exact temperature control at any spot on the body, and at any degree desired. The design enables the doctor or nurse to quickly adjust the apparatus to the temperature preferred, irrespective of the type and shape of pad or length of extensions. Being constructed to move on rubber-tired wheels it may be easily moved into room or ward, and has the capacity to handle from one to six patients, with a separate cold control to each patient and his requirements.

Nothing new or freakish and untried is incorporated into the design, as adaptations of various well-known principles and parts in combination are used and the general design is of extreme simplicity and usage, and very easily controlled by the operator for rapid or slow cooling as desired.

Any competent refrigeration mechanic, or engineer, can construct it as a mobile, portable unit. Details in general are:

The usual refrigeration compressor unit, with cooling coils submerged in a well-insulated reservoir, this reservoir containing an anti-freeze solution or brine, which in turn is kept at the proper temperature by the usual thermostatic switch temperature control, which cycles the mechanism.

Inserted into this reservoir is a suction intake pipe, with opening near the bottom of the reservoir or pot. The other end of this pipe leads into the brine circulating pump, which may be of rotary nature or an electrical impulse type, and from this pump is a pressure pipe leading to the control board. From this control board the discharge return pipe leads back to the pot. The pot and pipes to and from the control board including the circulating pump, must be frost insulated.

Flow Controls Temperature

The control board contains the metering device or devices, by which the chilled brine is by-passed into the conveying lines, and into the chilling pads used on the patient. It is at this point that temperature control of chilling pads is accomplished by the amount of chilled brine flow passing through the pads within a given time period.

Inasmuch as an almost constant temperature is maintained at the pot and the balance of the chilled brine not used, is by-passed back into the discharge lines to return to the pot, the temperature fluctuation is small at any given point. The chilled brine bypassing the control panel pre-chills the heated brine from the pads into the return pipe to the pot.

The Cold Control consists of a Variable-hand-controlled-diaphragm-needle valve,

which allows a metered by-pass of chilled brine into conveying line to patient, and the returned brine exhausts directly into the discharge return pipe. Between the pressured chilled brine pipe and the exhaust return pipe, close to the control valve, is a bleeder by-pass to maintain a head pressure on one side of control valve, and a safety pressure release when needed.

The back of the control panel and its fittings are frost-insulated.

The front of the frost-insulated panel contains the proper fittings for attaching the patient's conveying lines, and the pointer handled end of the control valve and a graduated scale, for each set of outlet and return lines.

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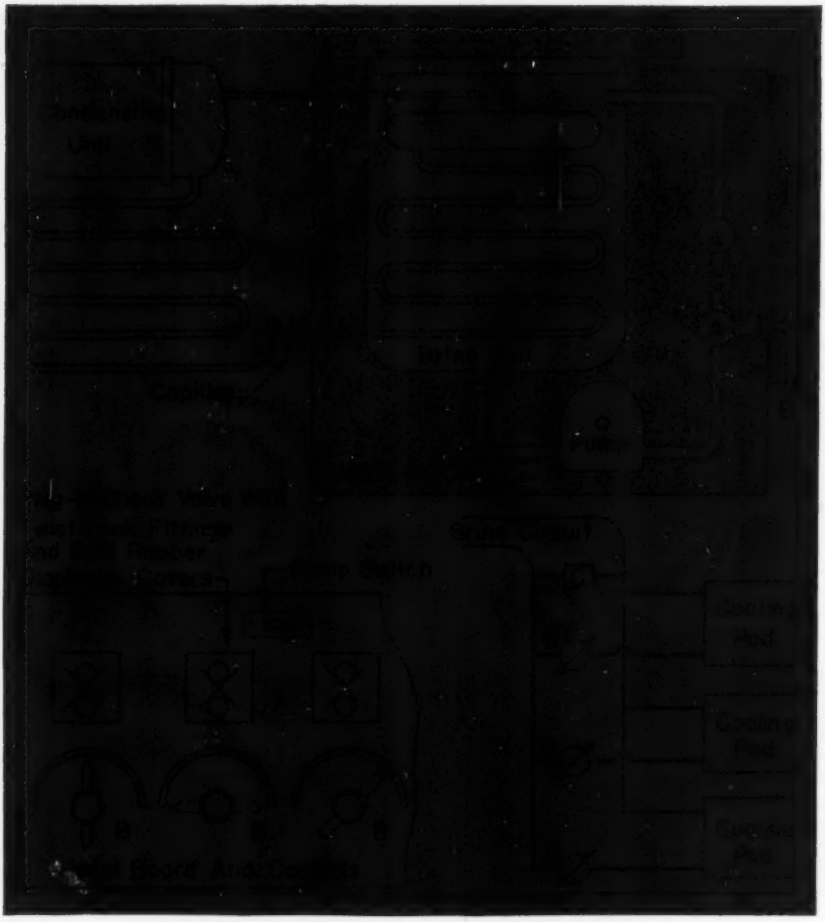


SCHEMATIC SKETCH OF ANESTHESIA MACHINE

Illustrated above is the insulation filled cabinet containing the brine pot, circulating pump, brine valves, headers and by-pass valve. The hermetic condensing unit is shown schematically upper left. Lower left is a partial plan of the panel board and lower right is a schematic brine circuit showing connections to the pads or cooling coils.

(A)—in the drawings is the brine circuit headers; (B)—the variable line valves for pads and (C)—the bleeder by-pass set for a pressure of 25 lbs.

QUESTIONS AND ANSWERS

On Problems of Servicing, Installation and Maintenance of Household and Commercial Refrigerating Equipment—Send Your Problems to the Question Box.

MORE ABOUT PRESSURE INCREASES WHEN THAWZONE IS ADDED

WE NOTE on page 42 of the February, 1946, issue of THE REFRIGERATION SERVICE ENGINEER Question 733 and its answer under the heading "Pressure Increases When Thawzone Is Added."

The problem as stated indicates that a service engineer added Thawzone to a ⅓ hp. methyl chloride unit with which he was having moisture trouble. He states that when this was done the pressure (presumably the head pressure) went up from 90 to 140 pounds. The room temperature was 70° F.

Your Answer Man tends to attribute the occurrence to the possible production of hydrogen and oxygen from decomposition of the water by Thawzone. Actually, the rise in pressure merely tends to show that the moisture condition has been corrected. For example, with the machine running with a blocked expansion valve, the low side will pull down to a point where no more refrigerant can circulate, and consequently the head pressure will drop to a point close to the equivalent pressure of methyl chloride in a cylinder. Ninety pounds would not be an unreasonable figure for this pressure, especially if the blocking was not complete. Upon the addition of Thawzone the expansion valve apparently was cleared and refrigerant began to circulate. Due to the fact that the low side was probably warm, the machine was operating at full load, and consequently the head pressure went up to 140 pounds. It would probably pull down a little thereafter.

May Be Other Troubles

It is quite possible that the condenser was a little dirty, or that there was a small amount of air in the system, which would account for both the 90 pounds at no load, and 140 pounds at full load. The important point is that both pressures are a little high. I think it is clear, from the foregoing, that, unless other factors were present which were not disclosed in the engineer's question, Thawzone had done an efficient job in removing the freezeup in the expansion valve.

Before closing this statement, a word should be said about the chemical action of Thawzone in a refrigerating system. At no time does it act by breaking up water into its two elementary components, hydrogen and oxygen. This is an unusual reaction for water, and is generally accomplished only by electrolysis. Chemically speaking, water undergoes reactions and forms other products in two steps; the first is to ionize to hydrogen ions and hydroxyl ions. It is with these that Thawzone reacts to form products which are soluble in oil and refrigerant, and which are inert and harmless in the system. The exact nature of these products is difficult to define, since they vary with the exact conditions present in any system, and depend on the type of oil and refrigerant present, as well as other conditions. The important point, however, is that no gases are formed, and that the products into which the water is converted are neutral and harmless.—*S. H. Crampton, Highside Chemicals Company.*

MORE ON QUESTION 733

IN QUESTION 733 of the February issue concerning the rise in head pressure caused by the addition of Thawzone to the crankcase, I find nothing unreasonable nor unusual about this condition because I have had it happen to me and I know exactly what causes the head pressure to rise after the Thawzone has been added. As long as there is any abnormal restriction in the expansion valve due to formation of ice, wax, sludge, etc., the flow of liquid into the coil is slower. Therefore, a lower back pressure and a lower head pressure. As soon as the Thawzone melts the ice in the expansion valve the flow of liquid becomes greater and you immediately get a higher back pressure and a higher head pressure.

In some cases I have found that inexperienced mechanics servicing jobs that have moisture in them have mistakenly thought that the system was low on refrigerant due to the low back pressure caused by ice at the expansion valve and have added more refrigerant without ever finding the real trouble. In these cases when a real Service Engineer is called in to find the trouble, he has to immediately remove some of the re-

frigerant because the head pressure jumps sky-high due to an overcharge after he adds Thawzone. In some cases I have found that when there is moisture in a system the compressor may run on a vacuum and pull in air around the shaft seal. Then when Thawzone is added the head pressure will go high due to the air in the system.

In practically all of these cases where I find moisture in the system and the system only carries a small charge of refrigerant I usually release the entire charge and install a dryer or add Thawzone as I recharge the system.—*C. T. Allen, Atlanta, Georgia.*

CLEANING A MAJESTIC SYSTEM

Question 739: I have taken the compressor unit off a Majestic model 205. The unit had at some time been taken down and put back together with a welding job, resulting in burning the insulation inside of the dome and causing dirt to be circulated throughout the entire system. I am changing it over to a Norge. What can I use to clean out the entire system? I have thought of pumping liquid methyl chloride through it. What would you advise.

Answer: The type of foreign substance in the system is of a nature that can be flushed out. I would suggest you use carbon tetrachloride as the cleaning agent. Any carbon deposits will also be removed by this chemical.

After the lines and evaporator have been thoroughly cleaned, they should be dehydrated before being put back in service.

HOW MUCH CO_2 IN A CONTAINER

Question 740: Can you give me the information on figuring the capacity of containers for CO_2 in regards to their capacity of water in pounds?

Answer: We do not have the direct information you have asked for but the following information will give you the requested data.

Carbon dioxide reaches its critical point at 87.8° F. At this temperature the density of the liquid and vapor is the same, namely 29.308 lbs. per cubic foot. Water at 68° F. weighs 62.425 lbs. per cubic foot.

For safe handling, it is necessary to have room for expansion of the liquid CO_2 and extra space to permit safety in handling. The relative densities are in the ratio of one pound of CO_2 to 2.14 pounds of water. It would therefore seem wise to put no more than one pound in a container for every 2½ pounds of water that it would hold.

SURGE TANK NEEDED

Question 741: Last summer I installed 35 ft. of ⅜" copper tubing as a cooling coil in an icebox Coke Cooler. The bottles stand in water. I then connected it to the compressor of an ice cream cabinet (6 hole). I used hand shut-off valves in each line, a Detroit thermostatic expansion valve and an A.P. suction pressure regulating valve and check valve. The compressor is remote from the ice cream cabinet and I think ⅓ or ½ hp. It had been connected to two cabinets once so I knew it had enough capacity for both. Now there is this trouble—when the suction pressure regulating valve is set to freeze, the compressor short cycles. I suppose that when the ice cream cabinet is cold enough the compressor has entirely too much capacity for the "Coke" machine, therefore short cycles. The check valve is used in the suction line of the ice cream cabinet.

What can be done about this?

Answer: Your problem is one that is commonly encountered on multiplex hookups. The reason short-cycling occurs is due to the limited volume of the suction line and compressor body. I think you will find the installation of a surge tank will improve the operation. The tank should be mounted above the suction line with the only connection in the bottom to prevent trapping any liquid refrigerant or oil. Connect the line from the surge tank to a tee in the suction line. The tank should be of at least 10 gallons capacity and designed for refrigerant pressures.

The action that takes place in such an installation is that of permitting additional vapor to form from the high temperature fixture before raising the pressure to a point where the switch turns the machine on.

MULTIPLEXING CONDENSING UNITS

Question 742: I am submitting two sketches identified by Figs. 1 and 2. I have been away from refrigeration about four years, text books are not at hand—and then I like your answers better anyhow.

Now that refrigeration equipment is becoming available again we are pulling in our fractional horse jobs on fountains and converting to "Freon" and full horse units. This makes the customer happier and cuts our service calls down. I might explain that I'm working for an ice cream company and we furnish the customer with both equipment and service on fountain units.

Putting in new equipment has piled our older fractional jobs shop high. There just

ought to be a place for them, especially the better units. If diagrams submitted are of any practical use whatsoever, please make comments and corrections on them and return.

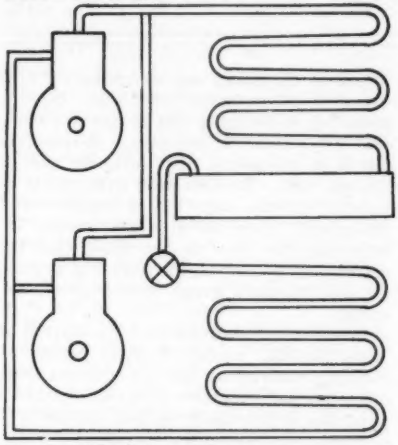


Fig. 1—Multiplexing with two compressors on one condenser.

In Fig. 1, will the system work? All compressor motors are wired through same switch to start and stop simultaneously. Would it work on low side float? I know it isn't too practical but it saves us time to try it.

We have several fractional horse units lying around and want to increase our compressor efficiently. Will Fig. 2 work satisfactorily? New Equipment is being installed in many old installations and consequently we are getting overstocked on high side units. These units are okay except for age. Efficiency is good but our loads have increased to where a single fractional unit can't pull the load. Wonder if we could multiplex several fractional units and obtain a high horse rating?

ANSWER: After going over your diagrams on the multiplexing of condensing units, let me first state that any multiplexing is not advisable although it is frequently necessary for special applications.

In the occasion you have in mind, I would suggest that a single unit be used of adequate capacity for the job. When multiplexing is done, it frequently requires many special parts and variables to make the system operate correctly.

Where you have three compressors pulling on one evaporator, you will find the pressures slightly different in each condenser causing all of the liquid to back up into one receiver and feed gas instead of liquid to the expansion valve.

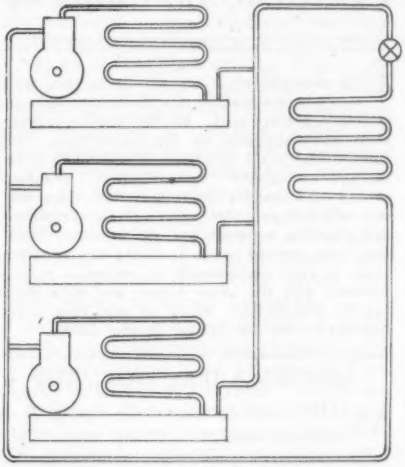


Fig. 2—Three condensing units connected in multiple.

If the company you represent has a number of these smaller units, it is quite likely you will be able to dispose of them by advertising. One-fourth hp. and other fractional horsepower sizes are very popular at the present time.

I would not recommend the multiplexing on ice cream cabinets or where the ice cream company must also service them because there is too much chance for the systems getting out of order and requiring frequent service.

MIDGET COOLER FOR PLANES

THE Lockheed plane Constellation, which Transcontinental & Western Airways inaugurated recently for the Washington to Paris flight, is a "hot ship" in more ways than one. The pilots call it a "hot ship" because of its great speed, but so great is the heat caused by its speed through the air, from its high pressure system, radio tubes, electric motor and lights, with other heat sources, that the management has had installed, to cool the cabin, a midget 115-lb. air-expansion turbine refrigeration unit which has more cooling capacity than that of a 5,000-lb. machine used to cool a Pullman car.

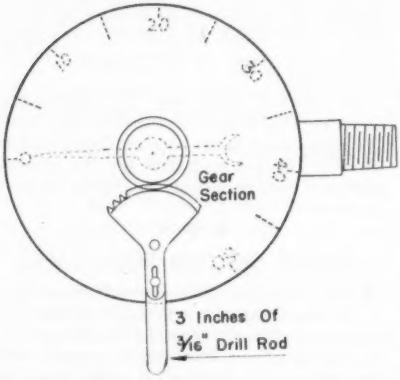
SERVICE POINTERS

Practical Solutions of Your Service Problems

THIS department is an aid to service engineers who are seeking new devices or methods to improve their work. All the service pointers have been supplied by the subscribers. THE REFRIGERATION SERVICE ENGINEER invites readers to submit "down-to-earth" practical service and installation information. Five dollars will be paid for each pointer published. Every service engineer has one or more "kinks" that have proved useful in every day practice. Here is your opportunity to exchange service pointers with the other fellow and earn $5.00 for the information. Write up your idea today and mail it to the *Service Pointer Editor*.

MAKING A DIAL INDICATOR

WHEN doing compressor repairs it is often necessary to set up work in the lathe independent chuck. Centering this work without a dial indicator by the tedious method of surface scratching the work with a tool bit, is difficult. Using a dial indicator is much easier.



Dial indicator made from pressure gage.

A dial indicator can be constructed from an old compound gage altered as follows: Remove the casing, then remove linkage between the Bourdon tube and the gear arm. Obtain a piece of 3/16 drill rod or similar material 3" long and fasten directly on to gear arm. A slot in the case may be made to accommodate this arm. The male pipe fitting on the gauge may be ground or filed square to accommodate your lathe. Set the gauge up in the lathe tool holder or even a tool bit holder, if necessary. Adjust the apron or compound rest until the arm is against work. By operating lathe slowly or turning by hand, any "out of trueness" will immediately cause the needle to waver. By adjusting the jaws to the point that the needle does not waver, the work will be true. Be sure to use a gauge with a good hairspring.

The gearing magnifies the off centering of work greatly, enough, I have found by checking work set up like this with an expert machinist and expensive precision tools, to a point that is practically perfect for this type of work.—*Submitted by Frank Depagnier, City Island 64, N. Y.*

A SUGGESTION ON NORGE UNITS AND ON REPACKING MOTORS

WHEN servicing Norge unit using a high side float and capillary tube, you can take the float out altogether and just use the same capillary.

Install a filter where the liquid line leaves the condensing unit and charge with gas. This model was called the Synchronizer model. It used "F-12" mixed with SO_2. Be sure to use a filter ahead of the small tubing to prevent plugging the capillary. Charge until the suction line frosts, then remove just a small amount. The capillary can be soldered inside the ¼ inch line coming from the filter.

Freezing up, on the Norge units having the thermostat laying on top of the evaporator, can be stopped by placing an aluminum plate on the top of the control. The water runs into the control and freezes it up, causing it to freeze the food. Make certain the bulb is clamped tight to the evaporator.

When servicing electric motors, I find using wool yarn, bought at local stores, makes excellent packing for motor bearings. I find it much better than using waste purchased from hardware stores. Wash the bearings out with carbon tetrachloride before repacking.—*Submitted by J. M. Gantt, Montgomery, Ala.*

GRUNOW UNITS

IN ALMOST any plugged unit like Question 725, January 1946, the trouble will be found that the condenser has an accumulation of rust and rust scale, and to avoid any future trouble the condenser must be removed; then unsweat the "U" shaped bends on one side of condenser. You will find plenty of rust showing inside the tubes. A wire brush or rifle cleaner run inside the tubes will help loosen the rust; then blow out with about 160 pounds of air, flush with carbon tet and repeat with air. Sweat "U" bends back on condenser. We always test under pressure for leaks and blow back from small tube end. A new and medium sized filter dryer installed is necessary between condenser and meter or float. Replace meter as it will be rusted inside.

We also have found that the burnt condition of the stator field can be due to several things. (1) Loose ends on rotor copper bars. These were riveted, then solder sweated. Resweat them to insure a good bond. Trouble originates from air in system and in some cases continued running with plugged condition of capillary tube.

With all Carrene drained from evaporator and suction pipe disconnected from compressor dome and liquid line connection open, reverse air pressure to flow and blow back through suction line, which then clears any restriction in upper capillary from evaporator to opened connection in liquid line.

(2) Check condition of relay if wire coil seems to have a blue-black color. Chances are that the plunger has been sticking, causing starting coils to remain in circuit. Replace relay.

Vacuum gauge on meter, with unit idle after machine has been charged and air-purged, should show close to 20 inches or better. Running, 7 inches to 10 inches in room temperature of about 75 degrees to 80 degrees. Bottom shelf inside should show fairly rapid temperature pull-down.

If, after a few days operation, a defrost action occurs and continual running, warm up evaporator near point of entry of liquid line at bottom rear. A sudden release and rushing sound indicates moisture in system.

That new fan that replaces No. 10949 is a honey and is worth the extra cost.—*Submitted by W. C. Hefferlin, Livingston, Montana.*

I don't care, Broderick, how much the Ice Company pays you, you can't wear that sign on your back.

H. F. SPOEHRER
President

E. M. FLANNERY
Vice-president

GUY J. HENRY
Treasurer

C. H. BENSON
Secretary

REFRIGERATION EQUIPMENT MANUFACTURERS ASSOCIATION HOLDS FOUR-DAY MEETING

STEPS to assure an uninterrupted flow of parts and equipment, even when the industry attains its full capacity, were completed at a series of meetings and conferences of 100 manufacturers and twice that many wholesalers in the mechanical refrigeration and air conditioning industry.

An expanded co-operative program to utilize the industry's maximum productive capacity, now two to three times greater than in prewar years, was adopted at the Spring conference of the Refrigeration Equipment Manufacturers Association and the Refrigeration Equipment Wholesalers Association held in Chicago at the Stevens Hotel March 4-7.

During the four-day meeting, the two associations held separate sessions to transact the individual business of each group.

H. F. Spoehrer, vice-president of the Sporlan Valve Company of St. Louis, was elected president of the Refrigeration Equipment Manufacturers Association. He succeeds F. J. Hood, secretary-treasurer of the Ansul Chemical Company of Marinette, Wisconsin, as head of the association which now comprises more than 90 members rep-

(Continued on page 47)

REMA Officers 1946-47

President, H. F. Spoehrer, Sporlan Valve Co., St. Louis, Mo.
Vice-president, Edward M. Flannery, Bush Mfg. Co., Hartford, Conn.
Secretary, C. H. Benson, Imperial Brass Mfg. Co., Chicago, Ill.
Treasurer, Guy J. Henry, Henry Valve Company, Chicago, Ill.

Board of Directors

K. B. Thorndike, Detroit Lubricator Co., Chicago; G. E. Graff, Ranco, Inc., Columbus, Ohio; R. H. Israel, Virginia Smelting Co., West Norfolk, Va.; H. F. Hildreth, Westinghouse Electric Corp., Springfield, Mass.; J. W. Krall, Tyler Fixture Corp., Niles, Mich.

REMA new Directors. Left to right: R. H. Israel, Virgining Smelting Co., West Norfolk, Va.; H. F. Hildreth, Westinghouse Electric Corp., Springfield, Mass.; K. B. Thorndike, Detroit Lubricator Co., Chicago, Ill.; and G. E. Graff, Ranco, Inc., Columbus, Ohio. J. W. Krall, Niles, Mich., new Director not present when picture was taken.

REWA HAS RECORD ATTENDANCE FOR 11TH MEETING

THE Refrigeration Equipment Wholesalers Association's joint meeting with REMA attracted the largest attendance for its Eleventh Annual Meeting held at the Stevens Hotel, Chicago, March 4 to 7, 1946.

The opening session disposed of the usual association business, with President Harold R. McCombs presiding, and the association receiving the reports of Executive Secretary H. S. McCloud, and committee reports by G. J. Roche, chairman, Government Contact Committee, as well as By-Laws Committee; A. H. Holcombe, chairman, Finance Committee, and H. G. Stern, chairman, Resolutions Committee.

TED I. GLOU
President

The second day session was addressed by F. J. Hood, president of REMA, H. T. McDermott, international secretary of RSES, and F. K. Zimmerman, chairman, REMA Credit Committee.

Several excellent talks were presented by I. G. Fajans on "How the regional groups can best serve the association," and by G. J. Roche on "What the national association can do for the member wholesaler."

The Wednesday morning session was a joint meeting of both associations at which time reports were presented, including The Manufacturers Relations Committee by F. S. Langenskamp (REWA), who presented to the manufacturers the recently published "Statement of Wholesalers Policy." In presenting this statement, the wholesalers pledged their efforts, energy and resources towards bringing about a better relationship with the all industry factors. The statement includes four subdivisions as follows:

REWA Officers 1946-1947

President, Ted I. Glou, Syracuse, N. Y.
Vice-president, Geo. J. Roche, Baltimore, Md.
Treasurer, Alex H. Holcombe, Jr., Philadelphia, Pa.
Secretary, Harold G. Stern, Seattle, Wash.
Exec. Secretary, H. S. McCloud, Cincinnati, Ohio.

Executive Committee

Ted I Glou — Geo. J. Roche
Alex H. Holcombe, Jr. — Harold G. Stern
Harold R. McCombs

Board of Directors

Tel I. Glou	H. R. McCombs
H. W. Small	Otto A. Friemel
Geo. J. Roche	Alex H. Holcombe
Harold G. Stern	Irving J. Fajans
Edward C. Marsden	Jos. M. Mideke
Warren H. Parker	J. D. Ross

Sales and Advertising Program

1. Trade paper advertising.
2. Regular direct mail literature.
3. Attractive merchandise displays.
4. Up-to-date catalogs.
5. Choice store locations.
6. Classified phone book advertising.

Advantages in Selling Through REWA Members

1. Intimate knowledge of local markets through close personal contacts with the trade.
2. Ample warehouse facilities to provide on-the-spot selling.
3. Aggressive sales effort combined with intelligent engineering advice.
4. Quantity purchases by REWA members eliminate "small order losses."
5. Catalog representation for your products.
6. Reputable, well-financed channels of distribution protect you against Credit Losses.
7. Cooperative action among members assures sound, uniform trade practice.

Definition of a Wholesaler

The term "Refrigeration Equipment Wholesaler" is defined to mean a person, firm or corporation:

1. Whose only activity in refrigeration is the sale of new refrigeration and air conditioning equipment, parts and supplies at wholesale to the trade as definied in Number 7.
2. Who does not sell at retail.

2a. Who does not sell refrigeration merchandise of any description, through his own appointed franchised or exclusive dealers.

3. Who does not perform installation or service except as noted in Number 4.
4. Who may, however, perform shop repair work at wholesale to the trade only as defined in Number 7.
5. Who does not contract for installation or service.
6. Who does not compete with the trade as defined in Number 7.
7. The term "trade" is definied to include the following: Servicemen, Dealers, Machine Distributors, Contractors, Ice Cream Manufacturers and other recognized trade outlets.

A. H. HOLCOMBE, JR.
Treasurer

Approved Business Policy

1. Purchase at wholesale prices from the original manufacturer Refrigeration and Air Conditioning Equipment, Parts, Accessories and Supplies.
2. Maintain and warehouse a stock of such products to supply adequately the requirements of the trade.
3. Distribute—to the trade only—a catalog, either of their own or an aggregation of manufacturers' catalogs.
4. Have no financial interest, either as a Company or through an executive, employe, partner or stockholder, in any company engaged in retail sales, or wholesale sales to franchised or exclusive dealers, service or contracting for service in any phase of refrigeration or air conditioning.
5. Maintain adequate displays of merchandise handled, in so far as is practical.
6. Cooperate with manufacturers in educational activities designed to better acquaint both employees and customers with the features incorporated in all products sold.
7. Cooperate with manufacturers in promotional calls on the trade with manufacturers' representatives whenever such activity is desirable or advisable.
8. Distribute direct mailing pieces, catalogs and other promotional materials, to the trade when they are supplied for this purpose by the manufacturer.
9. Maintain manufacturers' recommended and published resale price schedules.
10. Follow up, by contact with the trade, all inquiries received by the manufacturer and referred to the wholesaler for handling.

New REWA Officers and Directors. Seated, Left to Right: H. S. McCloud, Exec. Secretary, Williams & Co. Inc., Cincinnati, Ohio; Ted I. Glou, President, Central Serv. Sup., Syracuse, N. Y.; Geo. J. Roche, Vice-president, Parks & Hull, Baltimore, Md. Standing, Left to Right: Harold R. McCombs, Director, McCombs Ref. Sup. Co., Denver, Colo.; J. D. Ross, Director, Railway Eng. Spec., Montreal, Can.; Alex H. Holcombe, Treasurer, Victor Sales & Supply, Philadelphia, Pa.; Jos. M. Mideke, Director, Mideke Supply, Oklahoma City, Okla.; Edward C. Marsden, Director, Marsden & Wasserman, Hartford, Conn.; Otto A. Friemel, Director, Brass & Copper Sales, St. Louis. Mo.

Harold G. Stern, Secretary, Seattle, Wash. and Directors H. W. Small, Warren H. Parker and Irving J. Fajans not present when picture was taken.

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11. Cooperate with the manufacturer in all matters pertaining to warranty on products, defective parts and worn out parts returned for replacement or repair.
12. Cooperate with the manufacturer and his representatives by permitting examination of their stock, in the wholesalers warehouse, to eliminate slow moving inventory and increase rate of turnover of merchandise.
13. Cooperate with the manufacturer to keep the financial position on a current basis in so far as is possible.
14. Use manufacturers' parts numbers and full description in ordering materials, to expedite prompt handling of orders and eliminate unnecessary correspondence and the problem of rehandling shipments of wrong materials.
15. Handle as few lines of similar merchandise as is consistent with good business.
16. Cooperate with the manufacturers in defense of the products handled, in all cases of unfair criticism or condemnation.

REMA MEETING

(Continued from page 44)

resenting every branch of the refrigeration and air conditioning fields.

The same government which broke many bottlenecks in war production has itself become the country's one and only bottleneck in getting the goods people need to live in peace.

This was the statement of H. F. Spoehrer, newly-elected president, who called on Congress and Washington agencies to take immediate steps permitting his industry "to get materials and go about its business."

Mr. Spoehrer declared that the mechanical refrigeration and air conditioning industry has two to three times its prewar productive capacity but is free to turn out only a small part of its prewar volume.

"Our industry is back to the bottleneck," he said. "Today, however, there is only one bottleneck—the government. Lack of materials and strikes, the one practically synonymous with the other, stem from delays in enacting proper labor relations measures. Production and distribution are hampered by delays in getting relief from price controls."

Common problems of the two branches of the industry were discussed at a joint session of REMA and REWA on Wednesday, March 6. Booths in the exhibition hall of the Stevens Hotel were used by manufacturers for conferences with the wholesalers during the four-day conclave.

The joint session was featured by a talk by George S. Jones, Jr., vice president of Servel, Inc., and president of the National Federation of Sales Executives. He urged the REMA and REWA members to take steps now to gear their selling and distribution machinery to the expansion of the industry's productive capacity.

The industry co-operation theme of the meeting was stressed at the joint session by F. S. Langsenkamp of the F. H. Langsenkamp Company, Indianapolis, speaking for REWA; and George R. Allen of the Kerotest Manufacturing Company, Pittsburgh, for REMA.

Mr. Langsenkamp urged the manufacturers to keep close contact with their distributors and wholesalers as a positive step toward improving the flow of parts and equipment to the public.

Mr. Allen told the joint meeting that REMA always is ready and willing to do everything in its power to improve the already good relations existing between all branches of the industry.

A broad public relations program covering the remaining months of 1946 was outlined by Richard G. Elliott of Theodore R. Sills & Co., public relations counsel for REMA.

In his annual report to the membership, F. J. Hood, retiring president of REMA, pointed to the continuing growth of REMA and the expansion in individual companies as indications of the increasing importance of the mechanical refrigeration and air conditioning industry.

He disclosed that 16 new members have been added to the REMA membership list in the past 12 months and predicted that the association's rapid rate of growth will continue under the new officers of REMA.

He revealed that final arrangements have been made with the city of Cleveland for the mammoth Cleveland Auditorium for the show and urged every REMA member to concentrate his efforts on making the exposition "the largest refrigeration and air conditioning show in the world." Plans for the exposition are under the direction of K. B. Thorndike, vice-president, Western Regional office of the Detroit Lubricator Company and a newly elected director of REMA.

S S S

ON JOB GI TRAINING

THE following business establishments, connected with the refrigeration field, have set up or are in the process of setting up veterans' training courses under the GI Bill of Rights, according to Atty. Cornelius P. Shea, veterans' counselor attached to the United States Employment Service office:

Consolidated Engineers, a refrigeration man, already approved; General Ice Cream Corp., refrigeration, pending; Springfield Ice & Fuel Co., refrigeration, pending.

S S S

REFRIGERATOR PRODUCTION

AS THE result of work stoppages affecting three major producers of domestic mechanical refrigerators during the last half of January, production and shipments for the month are estimated to have dropped 20% to around 100,000 units. Total shipments for the fourth quarter amounted to 314,000 units, including a revised December figure of 125,000 units. Shipments during the fourth quarter and during January have averaged about one third of the prewar rate of 309,000 units a month.

...Defies Georgia's Summer Heat

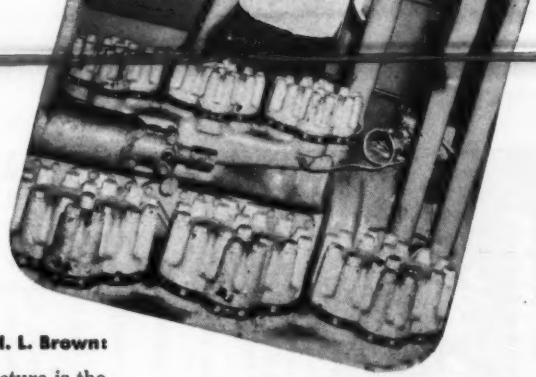
for Customers of Large Macon

S[illegible]re* ... With VALVES

Controlling the Cooling System

for Customers of Large Macon Store* With A-P VALVES Controlling the Cooling System

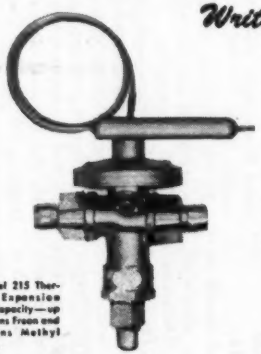
TEN YEARS of highly dependable service in controlling the cooling system of a leading chain store in Macon, Georgia, is credited to A-P Refrigeration Valves by Macon's Brown-Starr Electric Co. who services the installation.



Mr. H. L. Brown of Brown-Starr Electric Co., Macon, inspects store cooling system.

Writes **BROWN-STARR'S Mr. H. L. Brown:**

"The job shown in the picture is the installation at a large store here in Macon. I have used A-P Valves on this job to control the cooling system for the last ten years. In the fifteen years I have been using A-P Valves, I have always found them to be very satisfactory."



A-P Model 215 Thermostatic Expansion Valve. Capacity—up to 16.1 tons Freon and 32.1 tons Methyl Chloride.

AUTOMATIC PRODUCTS COMPANY

2454 N. 32nd St., Milwaukee 10, Wisconsin

Because they afford a wide range of adaptability, every standard A-P Refrigerant Valve can be used on Air Conditioning, Commercial Temperature, and Low Temperature installations without need for special attachments or for changing valves. This permits the use of one standard A-P Valve to fit a wide variety of applications.

*Name on request.

DEPENDABLE *Refrigerant Valves*

Stocked and Sold by Good Refrigeration Jobbers Everywhere • Recommended and Installed by Leading Refrigeration Service Engineers

LET'S TEACH HIM THE TRADE

(Continued from page 33)

would certainly be to the advantage of those who build and sell equipment. It avails little to build a fine line of equipment if properly trained men cannot be found to install and service it in such a manner as to do justice to the engineering and manufacturing skill that went into its creation. If enough trained men are not available, and the employer has to depend on half trained men to do his work, his costs are going to rise and we are all going to be the loser. If, on the other hand, the employer can be supplied with enough trained men so that he can operate efficiently and at a reasonable cost, and can give speedy and competent service, every one in the industry will benefit from the manufacturer right on down to the ultimate consumer. And as a group our prestige will be greatly enhanced and our earning power correspondingly increased.

I do not offer these suggestions as a solution to the entire training problem, but if learners are carefully selected from men who have had previous specialized training they will go a long way toward solving the present shortage. The method to be used in training these men will have to be left to the individual. In many cases it will be possible to get them on the job as helpers and as junior mechanics. In other cases it might be possible to form a group and set up a shop in someone's garage or workshop. Tools and equipment could be pooled and expenses shared. The groups should be small, never more than three or four men. If more than one group is formed in a community it might be feasible to exchange ideas and students.

CONTROLLED COLD

(Continued from page 38)

All conveying line fittings used should be of a check-valve type twist-lock, somewhat on the order of the well-known "Alemites" used on automotive grease racks, for ease of connection and to retain brine in conveying lines and in pads.

The chilling pads may be of various shapes and sizes, blankets or bandage, etc., as suggested by the medical society. One we have suggested would be an operation pad with a central opening to allow the surgeon to work through.

The pads would not be distressing to the patient, as their construction internally would be ribbed channel type, leaving a smooth outer surface. Weight would be at a minimum and in proportion to size. The temperature would be read at the patient's skin beneath the pad.

ELECTRIC INSTRUMENTS

(Continued from page 36)

pedance to a circuit will not seriously affect the indications. However, consider an instrument of the same type rated 0.5 ampere full scale. A typical instrument has a resistance of 14 ohms and an inductance of 0.023 henry. At 60 cycles, the reactance will be 8.67 ohms, and the instrument impedance will be 16.47 ohms. When this instrument is connected in a circuit, shown in Fig. 33, and rated current is sent through it, the drop across the instrument will be large. It will be seen that the normal current which should flow in this circuit is $\frac{E}{10}$ or $\frac{E}{R+jX}$ or $\frac{10}{7+j18.85}$ or 0.497 ampere; but when we add our instrument, we change the circuit constants to $\frac{10}{21+j27.52}$, and the ammeter actually reads 0.289 ampere, resulting in a discrepancy of 0.208 ampere or about 40 per cent.

(To Be Continued)

REFRIGERATION CONTRACTORS GROUP GROWING

MEMBERSHIP in the National Association of Refrigeration Contractors, which only completed its formal organization at a meeting in Cleveland, January 21 and 22, now numbers over 400 refrigeration contracting firms located in 60 cities scattered from New York to Texas and California.

In the following cities, local associations are organized and already affiliated with the national association: Cincinnati, Detroit, Milwaukee, New York, Minneapolis and St. Paul, Los Angeles, and San Francisco.

In the following cities, local associations are either in existence, or are being organized, and are expected to complete affiliation with the national association before long: Buffalo, Cleveland, Columbus, Dayton, Toledo, Richmond, Va., Flint, Mich., Phoenix, Ariz., Waterloo, Ia., Seattle, Wash., and Youngstown.

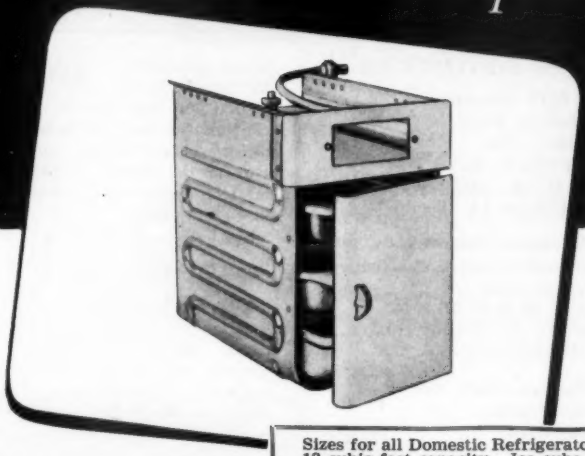
Twenty-five hundred refrigeration mechanics are employed by the 400 odd member

(Continued on page 76)

Announcing the new **JS Standard**

STAINLESS STEEL

Household Evaporators



Sizes for all Domestic Refrigerators of 4 to 12 cubic feet capacity. Ice cube trays are not furnished.

- Combining the advantages of stainless steel and high efficiency, Standard JS Household evaporators are constructed on the seamwelded principle. The refrigerant passages are on the sides, bottom and under each shelf tray.
- The JS line incorporates such features as satin finish, easily adjusted slotted hangers to match the bolt-holes in all makes of old and new boxes, and construction to permit equal efficiency whether used with a high side float, expansion valve or capillary tube.
- Tray sleeve dimensions will accommodate approximately 95 percent of ice cube trays now in service.

SPECIFICATIONS

All models are 12″ deep and 6″ wide inside.

Model No.	Trays Single	Trays Double	Cubic Feet	Height Inches	Width Inches
JS20	2	..	4-5½	8¼	7½
JS25	1	1	5-6	8¼	7½
JS30	3	..	6-7½	10⅝	7½
JS35	2	1	7-8½	10⅝	7½
JS40	4	..	9-11	13¼	7½
JS45	3	1	9-12	13¼	7½

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Refrigeration Service Engineers Society

Official Announcements of the activities of the International Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.

THE OBJECTS OF THE SOCIETY

To further the education and elevation of its members in the art and science of refrigeration engineering; for the reading and discussion of appropriate papers and lectures; the preparation and distribution among the membership of useful and practical information concerning the design, construction, operation and servicing of refrigerating machinery.

INTERNATIONAL HEADQUARTERS: 433-435 North Waller Ave., CHICAGO 44, ILL.

COMING CONVENTIONS

RSES Convention

Place: Hollenden Hotel.
City: Cleveland, Ohio.
Date: October 26, 27, 28, 29, 1946.
Secretary: H. T. McDermott, 433 N. Waller Ave., Chicago 44, Ill.

All Industry Exhibition:

Place: Cleveland Public Auditorium.
City: Cleveland, Ohio.
Date: October 28-29-30-31, 1946.
Exec. Secretary: R. Kennedy Hanson, 1107 Clark Bldg., Pittsburgh, Pa.

California State Assn.

Place: Hotel Fresno.
City: Fresno, Calif.
Date: May 11-12.
Secretary: Gerald S. Kennedy, P. O. Box 921, Sacramento, Calif.

LIMA, OHIO, FORMING

ON FEBRUARY 14 the Dayton, Ohio, Chapter held its meeting at Lima, inviting all refrigeration men in the area to attend. There was a very good attendance in spite of bad weather at the time. Fifteen applications for membership were received and Warren Roberts was appointed temporary Chairman; Gary Phillips temporary Secretary and Treasurer to carry on formation meetings. An educational motion picture provided an entertaining program for the meeting.

The next meeting was held February 26, at which time temporary officers were elected as follows: Warren Roberts, *President;* Paul Ward, *First Vice-president;* Chas. Bernholt, *Second Vice-president;* Vern Kautt, *Secretary;* and Gary Phillips, *Treasurer.* Additional applications were received, bringing the total to twenty-seven, all of whom signed a petition for charter. The petition for charter was then forwarded to the National Office where it is now under consideration. During the course of the business session meeting nights were set for the third Thursday each month.

LOGAN, UTAH, ORGANIZES

A NEW chapter is being organized in the city of Logan, Utah, and on the Utah State Agricultural College Campus. The chapter will consist primarily of students majoring in refrigeration at the College. No name has been selected as yet for the chapter but temporary officers were elected at the February meeting. They are: Ferris Daniels, *President;* J. Cecil, *Secretary-Treasurer;* Ray Dahle, Jr., *Sergeant-At-Arms.* Fifteen of the men applied for membership and signed the petition for charter which has been forwarded to the National Society and is now under consideration.

CLEVELAND CHAPTER CELEBRATES TENTH ANNIVERSARY

COMPLETING an important milestone in its history, Cleveland Chapter celebrated the conclusion of its tenth year of activity with a banquet at the Carter Hotel, Cleveland, Ohio, March 12 with over 100 in attendance.

One of the highlights of the interesting meeting was the historical record presented by Lawrence Gardella, a charter member of the chapter, recalling many of the interesting and humorous events that have transpired during the first ten years of existence of Cleveland Chapter. The chapter was char-

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Lynch *. . . By Comparison — You'll Buy PAR*

Manufacturing Corporation

TOLEDO 1, OHIO, U. S. A.

tered March 22, 1935, the charter being accepted on behalf of the members by its first president, Warren W. Farr.

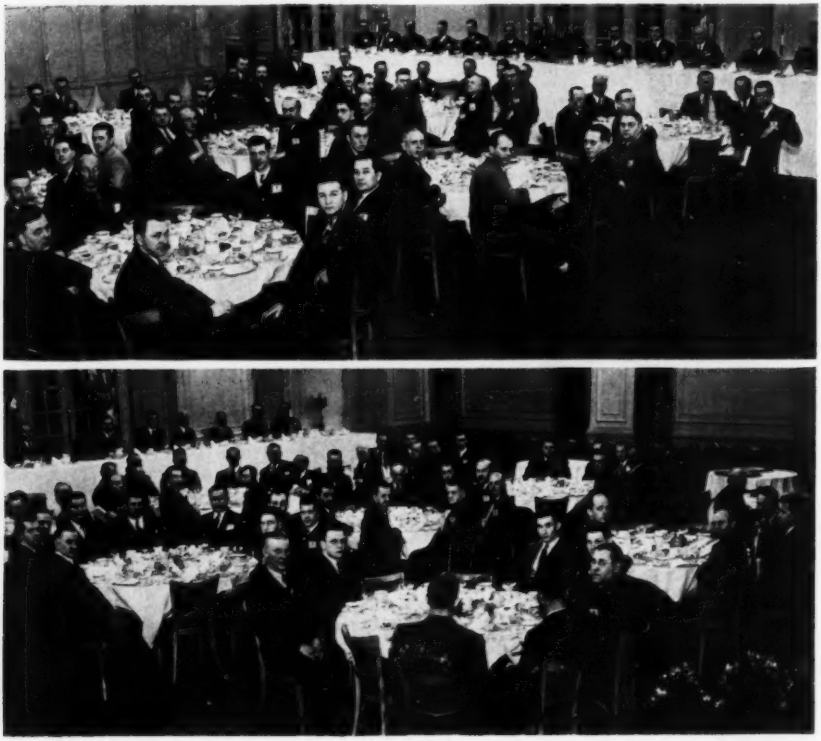
Current charter members include: R. D. Chown, Karl L. Debes, Warren W. Farr, Arthur E. Finke, L. E. Gardella, G. T. Hasmann, Glenn B. Keller, R. McCloskey, Wm. Meder, Fred Schuld, Geo. J. Schuld, Otto D. Sippel, A. V. Smith and Theo. A. Weichel.

The meeting was addressed by International Secretary H. T. McDermott and commemorating the founding of the chapter, both new and old members received the membership obligation. The retiring officers were introduced and the new officers were installed by the International Secretary.

Paul Spring was re-elected president of the chapter in appreciation of the splendid work he accomplished during the past year. Special commendation was accorded O. B. Herrick, the retiring educational chairman. The new officers for 1946-47 include: President, Paul Spring; 1st Vice President, Thomas Way; 2nd Vice President, R. Hollingsworth; Secretary, Charles Zembower; Treasurer, W. E. Wright; Sergeant-at-Arms, Dick Burney; Educational Chairman, Robert Whitney; Board of Directors, Warren W. Farr, Geo. Schuld, Sr., O. B. Herrick, R. A. Smith, Roy McCloskey.

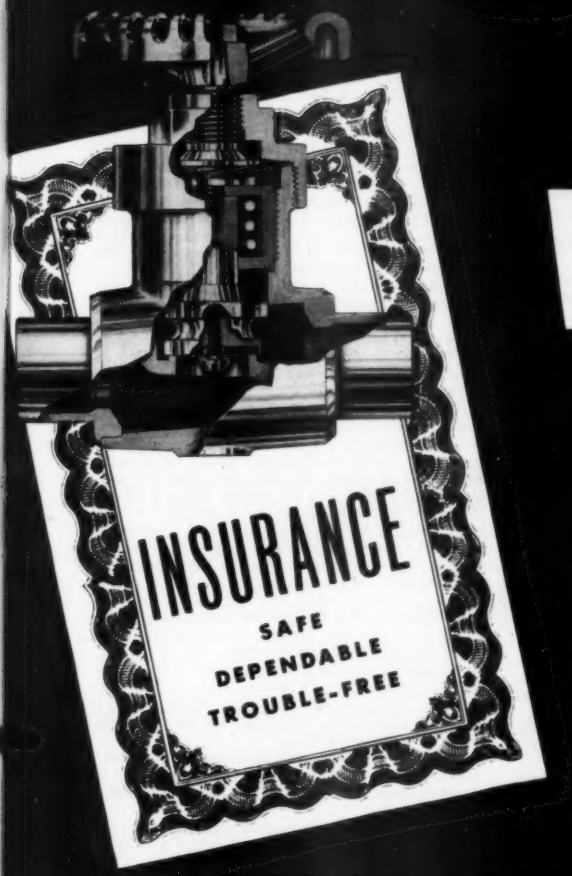
Among the guests attending were William Moyer, president, and Claude Wall, Secretary-Treasurer of Akron chapter; E. S. Wright, Youngstown Chapter; E. H. Grocott, president Youngstown Chapter; Howard Grossman, secretary-treasurer, Columbus Chapter; G. H. Brock, President Dayton Chapter; Forrest D. Poole Director of Southern Ohio Chapter; K. P. Wall, Cincinnati, former president of Cleveland Chapter.

Today Cleveland Chapter is ninth in point of membership and was the ninth chapter admitted into the national organization.



Banquet views taken during the Cleveland Chapter Tenth Anniversary celebration

KEROTEST



VALVES

KEROTEST MANUFACTURING COMPANY

Refrigeration Educational Sound Films
Schedule of Showings

UNDER the supervision of P. B. Reed, International Educational Director, a set of 16 sound films, grouped into 12 showings and accompanied by a set of slides, are being circulated among chapters as a part of their educational program. Films are all of a practical nature on servicing refrigerating systems. Titles of the films and their identifying numbers and the schedule of showings are listed.

Film Titles and Key Numbers

No.	TITLE
360	Principles of Refrigeration
438	Checking The System—Part I
439	Checking The System—Part II
440	Locating and Repairing Leaks
441	Adding or Removing Refrigerant
442	Removing and Installing A Compressor or Condenser
443	Removing and Installing A Cooling Unit
444	Adjusting and Checking The Expansion Valve
445	Checking and Replacing A Float Valve
446	Checking The Electrical System
447	Quieting A Noisy Refrigerator
448	Adjusting and Repairing The Thermo-Expansion Valve
451	Servicing Water Cooled Condensers
449	Adjusting Pressure Actuated Temperature Controls
450	Adjusting Commercial Thermostatic Controls
452	Making and Repairing Tubing Connections

Schedule of Showings

AKRON, OHIO—Akron Chapter: May 8—No. 438-439. Contact F. J. Roller, 357 S. Maple St., Akron 3, Ohio.

AURORA-ELGIN-JOLIET, ILL. — Tri-County Chapter: April 20—No. 360. May 18—No. 438-439. Contact B. V. Clark, 612 N. May St., Aurora, Ill.

BATON ROUGE, LA.—Louisiana Chapter: May 3—No. 438-439. Contact E. A. Summer, 3867 N. 33d St., Baton Rouge 5, La.

CHARLESTON, W. VA.—Charleston Chapter: May 14—No. 360. Contact H. G. Frame, 1105 Washington St., W., Charleston 2, W. Va.

CHICAGO, ILL.—Chicago Chapter: May 14—No. 440-441. Contact D. D. Orr, 332 S. Hoyne Ave., Chicago, Ill.

COLUMBUS, OHIO—Columbus Chapter: May 8—No. 440-441. Contact H. Grossman, 22 W. Naghten St., Columbus, Ohio.

DAVENPORT, IOWA — Mississippi Valley Chapter: May 7—No. 445. Contact J. Vinje, 529 W. Second St., Davenport, Iowa.

DAYTON, OHIO—Dayton Chapter: May 9—No. 442. Contact R. E. Warner, % Allied Supply Co., 359 W. Monument Ave., Dayton, Ohio.

DENVER, COLO.—Mile High Chapter: April 11—No. 440-441; May 20—No. 442. Contact R. C. Kimmel, 1524 15th St., Denver 17, Colo.

DUBUQUE, IOWA—Key City Chapter: May 1—No. 440-441. Contact R. E. Mueller, Stampfer Farm & Home Store, 7th and Iowa, Dubuque, Iowa.

EVANSVILLE, IND. — Evansville Chapter: April 25—No. 360. Contact C. E. Goad, 11 Main St., Evansville, Ind.

FORT WORTH, TEXAS—Cow Town Chapter: May 9—No. 360. Contact P. D. Cato, Texas Refn. Supply Co., 1410 Commerce St., Fort Worth, Texas.

GRAND RAPIDS, MICH. — Furniture City Chapter: May 7—No. 440-441. Contact M. D. Thiebout, % Consumers Power Co., 450 Market, S.W., Grand Rapids, Mich.

HUNTINGTON, W. VA.—Tri-State Chapter: May 14—No. 438-439. Contact A. W. Albertsen, 314 Eleventh St., Huntington 14, W. Va.

KANSAS CITY, MO.—Kansas City Chapter: May 1—No. 442. Contact C. R. Visger, 7715 Brooklyn, Kansas City, Mo.

LANSING, MICH.—Wolverine Chapter: April 22—No. 440-441. Contact R. Kellogg, 616 Jessop Ave., Lansing, Mich.

LOUISVILLE, KY.—Colonels Chapter: April 18—No. 440-441; May 16—No. 442. Contact J. M. Berry, % F. H. Langsenkamp Co., 339 W. Main St., Louisville 2, Ky.

MADISON, WIS.—Madison Chapter: May 9—No. 442. Contact Refrigeration Maintenance Corp., 731 University Ave., Madison 5, Wis.

MONTGOMERY, ALA.—Montgomery Chapter: May 20—No. 438-439. Contact W. C. Goodwin, 8 Forest Ave., Montgomery, Ala.

NEW HAVEN, CONN.—Elm City Chapter: May 2—No. 360. Contact T. B. Howell, United Illuminating Co., 221 George St., New Haven, Conn.

OMAHA, NEB.—Missouri Valley Chapter: April 18—No. 438-439; May 16—No. 440-441. Contact C. M. Flohr, % United Motors Serv., 27th Ave. and Harney St., Omaha, Neb.

READING, PA.—Reading Chapter: May 21—No. 360. Contact O. A. Larson, % Larson Supply Co., 326 Buttonwood St., Reading, Pa.

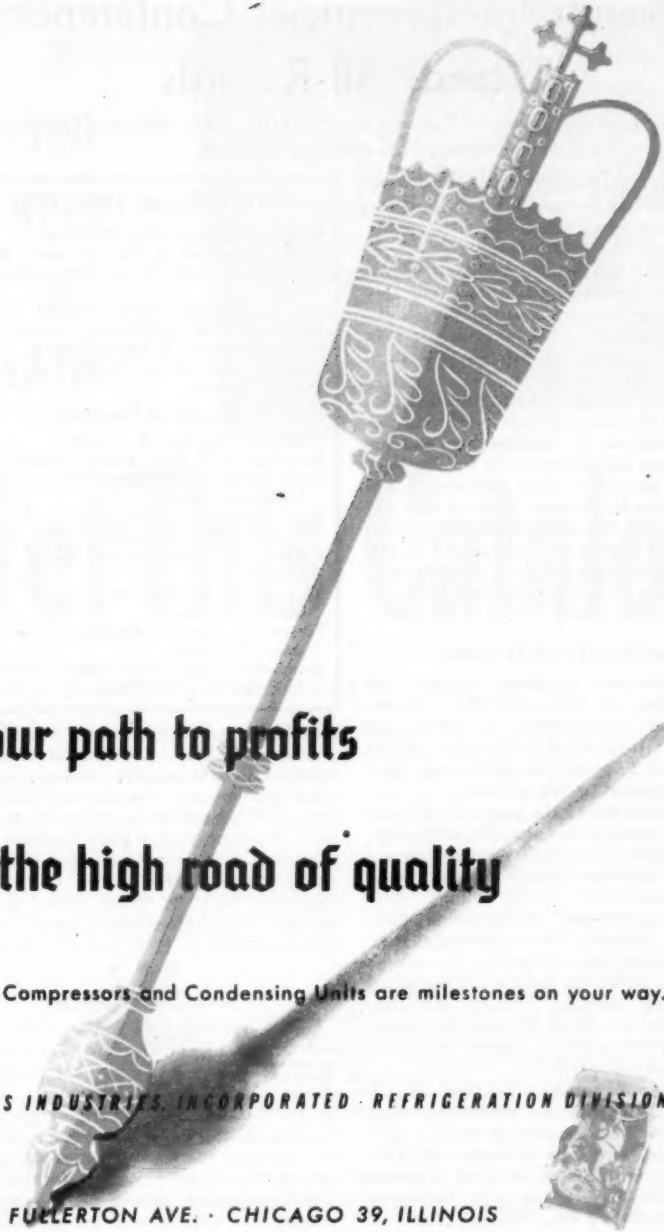
ROCKFORD, ILL.—Rockford Chapter: April 15—No. 440-441; May 20—No. 442. Contact L. L. Sturch, 1915 Vernon St., Rockford, Ill.

SALT LAKE CITY, UTAH—Beehive Chapter: April 25—No. 438-439. Contact W. W. Walker, % G. E. Supply Corp., 310 W. 2nd South St., Salt Lake City, Utah.

TULSA, OKLA.—Oil Capital Chapter: April 24—No. 440-441. Contact R. W. Palmer, 820 E. 3d St., Tulsa 3, Okla.

WATERLOO, IOWA—Cedar Valley Chapter: April 24—No. 438-439. Contact J. Adams, % Herbert Refrigeration, 719 Lafayette St., Waterloo, Iowa.

WILKES-BARRE, PA.—Wyoming Valley Chapter: May 13—No. 360. Contact A. Reese, 104 Slocum St., Forty Fort, Pa.



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Seventh Interprovincial Conference Exceeds All Records

Seventh Annual Meeting at Toronto March 17-18, 1946, Indicates Continued Progress of Canadian Chapters

THE Seventh Interprovincial Association Conference of the RSES was held at the King Edward Hotel, Toronto, Ont., Sunday and Monday, March 17th and 18th.

Each year, I.P.A. educational conferences have shown increased attendance and this year's meeting was no exception. Not only was the attendance of Canadian members larger, but an increased number of visitors from the States was evident.

In opening the convention, President W. H. Sneath, Toronto, outlined briefly the accomplishments of the organization and his remarks were supplemented by the excellent reports of Secretary E. G. McCracken and Treasurer Gordon Condie. Both of these reports indicated the Interprovincial Association was in a healthy financial condition, and summarized the effective work that had been accomplished, especially in contacts with the Government during critical war years.

The Educational Program

The educational meetings followed the pattern which has been established for Interprovincial Conferences in which the speakers at the end of each session act as a "Board of Experts" to answer any questions propounded by the audience.

On Sunday evening the program included a review of some of the educational films being circulated by the International office to its various chapters, as well as other entertaining films.

The Interprovincial Association luncheon on Monday heard G. E. Graff, Sales Manager of Ranco, Inc., Columbus, O., talk on cooperation within the industry. Concluding the two day meeting, Ontario Mapleleaf chapter held its annual banquet and dance, which provided a fitting climax for an evening of good fellowship.

Speakers and subjects included: H. T. McDermott, International Secretary; "High Performance Heat Transfer Surfaces," by J. G. McMillen, KeepRite Refrigeration Ltd., Brantford; "Cold Plates, As Used in Freezer Cabinets and Locker Plants," by Al Sawyer, Dole Refrigerating Co., Chicago; "Air Conditioning, Operation and Service," by S. A. Durbin, General Electric Co., Schenectady; "Going Into Business," by Paul B. Reed, Perfex Corp., Milwaukee; "Insurance Problems and Accident Prevention," by H. L. Kearns, Toronto; "Evaporative Condensers," by J. F. Watt, Cimco York, Toronto; "Advantages of Heat Interchangers," by Paul Domke, Mueller Brass Co., Port Huron; "Service," by C. E. Graff, Ranco Inc., Columbus. The "information please" program was conducted by H. S. Parish, Toronto.

IPA Officers 1946-1947

President, Gordon Roe, Montreal.
1st Vice-president, A. Pike, St. Johns, N. B.
2nd Vice-president, C. O. Cunningham, London.
Treasurer, Gordon Condie, Toronto.
Secretary, E. G. McCracken, Toronto.
Sergeant-at-Arms, R. Paton, Toronto.
Chairman, Educational Committee, A. E. Doan, Toronto.

Board of Directors

Chairman, Wm. Sneath, Toronto.
Montreal: J. C. Ross, Antonio Gendron.
Nova Scotia: C. J. Treadwell, Halifax; W. L. Mullenger, Halifax.
New Brunswick: A. La Flamme, St. John; G. W. Larlee, Edmundston.
Ottawa: W. Podd, Ottawa; Hilton Arthur, Ottawa.
Calgary: H. R. Dickieson, Calgary; W. H. Dowling, Calgary.
Toronto: J. Spence, Hamilton; A. G. Olmstead, Hamilton.
Members-at-Large: Frank Chance, Winnipeg; E. F. Beebe, Fort William.

AKRON CHAPTER

AT A meeting held in the Y.M.C.A. on March 18, the International Secretary, H. T. McDermott met with the members of Akron Chapter and addressed the meeting on the outlook of the refrigeration service business during the coming years. The chapter discussed the usual business matters and considered future programs for which the chapter has made arrangements to show the educational films now being circulated by the International Office.

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WISCONSIN STATE FIRST ANNUAL CONVENTION

THE Wisconsin State Association of the Refrigeration Service Engineers Society held its first annual convention March 16 and 17 in the Park Hotel, Madison, Wis. According to the consensus of the more than 140 in attendance, it was a very successful meeting both as a social gathering and as an educational and business meeting.

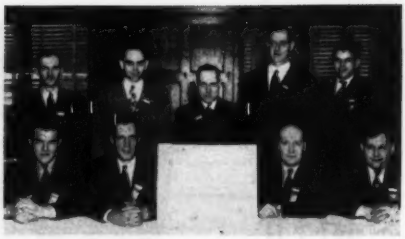
Visitors began arriving early Saturday morning and registrations continued all day. Few ladies were present until Saturday evening when the dance was held and again Sunday afternoon when the annual banquet and entertainment was held.

Saturday—March 16

The Saturday afternoon meeting, called to order at 2:30 P.M., was devoted entirely to educational talks. It was called to order by Lee Miles and immediately turned over to Vincent Sweeney, program chairman. Mr. Sweeney in turn introduced Mayor Kraege of Madison who delivered the address of welcome.

Al Murray, of Mills Industries, Inc., was the first educational speaker of the afternoon, discussing the trend of the times in the refrigeration industry. Among other things, Mr. Murray provided some interesting estimates of the increased sales and installations to be expected in the next few years, all of which means increased business for the Service Engineer.

Herman Goldberg of the Herman Goldberg Co., manufacturers' agents, spoke next on the position of the service engineer in the industry today and his probable course of tomorrow. He offered some worthwhile suggestions to the individual and to the group as an organization in plotting their future course.



WISCONSIN STATE OFFICERS

Left to right, standing: Richard Plansky, Thorpe; Lee A. Miles, Madison, Publicity Chairman; C. Buschkopf; Paul A. Hagenau, Park Falls; Gaylord Randall, Rice Lake. Left to right, sitting: Jack Coates, Rhinelander; Geo. Kosho'lok, Stevens Point, Treas.; A. L. Robertson, Madison, Pres.; Walter Bullis, Racine, Secy.

Directors not in photo: E. Mueller, Appleton, Vice-Pres.; A. Sargent, La Crosse, Sgt.-at-Arms; John A. Kleinheinz, Wausau.

A question and answer session, conducted by R. L. Hendrickson, occupied the balance of the afternoon session which adjourned at 4:00 P.M.

Sunday—March 17

Sunday morning at 11:00 A.M. the meeting was again called to order with the reading of minutes, the reports of committees and, finally, the installation of officers, conducted by Clarence Buschkopf.

VIEW OF THE WISCONSIN STATE ANNUAL BANQUET

Voting power in the Wisconsin State Association is allocated by districts. The state is divided into 14 districts with one member from each district on the State Board of Directors. The number of votes allowed each board member is determined by the membership of the district. The board elects their officers and votes on major issues coming before the state group.

Board members for this year include: Gaylord Randall, Rice Lake; Paul A. Hagenau, Park Falls; J. L. Coates, Rhinelander; Richard Plansky, Thorpe; John A. Kleinheinz, Wausau; H. S. Sargent, La Crosse; Ernest H. Mueller, Appleton; A. L. Robertson, Madison; and Walter C. Bullis, Racine.

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Here is efficient, unsurpassed refrigeration equipment. Specifically designed for the control of Freon, Sulphur-dioxide, Methyl-chloride and Ammonia. Also air, water, gas, light oil, etc. Suction lines or hi-pressure liquid lines.

K-15 and K-20 Series. Magnetic liquid and suction stops. The direct acting single seated needle valves and the piloted piston valves respectively. All valves are held open electrically, thus eliminating unnecessary compressor burdens. Tight shut-off for fractional tonnage installations. Features are Die-forged bodies, Hardened steel needles, Corrosion-proof internal parts, Gasketless construction, Integral mounting features, Moisture-proof high pressures. Single or dual voltage coils.

V-200 Thermal Expansion valve. Interchangeable Orifice Cartridges permit proper sizing on the job, making this literally six valves in one. Unmatched sensitivity, semi-liquid charged; may be placed in ambient temperatures higher or lower than bulb temperatures with no loss of control. Frictionless pusher-pin, ample diaphragm, plus balanced, low-rate adjusting spring. Carefully lapped hard-faced ball insures tight shut-off.

Strainers S-5 Series. The importance of suitable strainers ahead of a flow control device, such as automatic or regulating valves of any kind for long operating life, cannot be too heavily stressed. Bronze, iron or semi-steel bodies, Monel, reinforced bronze or felt screens, 3/16 to 120 strainer meshes.

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K-15

K-20

V-200

S-5-2

S-5-3

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31-1

Newly elected officers installed during the meeting are: A. L. Robertson, Madison, *President;* Ernest H. Mueller, Appleton, *Vice-president;* Walter C. Bullis, Racine, *Secretary;* George Koshollek, Stevens Point, *Treasurer;* H. S. Sargent, La Crosse, *Sergeant-at-Arms.*

An open discussion and finally adjournment wound up the business and educational sessions of the meeting at 12:30 P.M. At 1:30 P.M. the annual banquet was served and about 180 people sat down to an enjoyable turkey dinner with all the trimmings. Following the dinner was a half hour of entertainment by Ferguson, the magician, which started with a clever imitation of a very nervous speaker and developed into a number of baffling slight-of-hand tricks.

SPRINGFIELD, MISSOURI, CHAPTER BEING FORMED

ON FEBRUARY 20 refrigeration men of the Springfield, Missouri, area met and signed a petition for charter under which to form a chapter of the Refrigeration Service Engineers Society. Temporary officers as follows were elected: Michael Cindric, *President;* Earl Denney, *First Vice-president;* Charles J. Champieux, *Second Vice-president;* M. L. Mercer, *Treasurer;* Wayne Moore, *Secretary;* E. G. Hendrix, *Sergeant-At-Arms;* and Harry Hoffman, *Chairman of the Educational Committee.* Forty-four members have signed the petition for charter at the initial meetings, each of whom had previously filled out an application for membership. There was a great deal of enthusiasm displayed during the formative meetings and it is felt that at least 75% of the service men in the area are interested in joining.

LA CROSSE CHAPTER BEING FORMED

A meeting was held March 8 at La Crosse, Wis., for the purpose of considering the formation of a chapter of RSES in that locality. The weather was bad but in spite of this there was a good turnout of men in the area. Fourteen men signed a petition for charter at this time but it was felt that further meetings should be held in more favorable weather permitting more names to be added to the petition, therefore thirty additional days were allowed until the April 12 meeting before the petition would be sent to the National Society.

R.S.E.S. Chapter Notes

COLUMBUS CHAPTER

Columbus, Ohio, March 13—Fifty members of the chapter responded enthusiastically to the showing of the first picture in the series, Principles of Refrigeration. A lively discussion developed with the showing of the slides, which indicated the keen interest of the members.

KEY CITY CHAPTER

Dubuque, Ia., Feb. 6—The meeting was opened by President T. H. Glass. Loney Fish and Paul Ruggelburg from the Mississippi Valley Chapter at Davenport, Iowa, and Wm. Kronagge and Dick Kenney, from Kelvinator, were guests. Mr. Kenney explained how to service the new Kelvinator refrigerators. The meeting was then turned into a general discussion for the rest of the evening.

SPRINGFIELD CHAPTER

Springfield, Ill., Jan.—At the January meeting the following officers were elected for the coming year; J. J. Kline, *President;* Gene Kresse, *First Vice-president;* A. J. Pasquale, *Second Vice-president;* F. C. Meador, *Secretary;* J. K. Farley, *Treasurer.*

VIRGINIA CHAPTER

Richmond, Va., Feb. 6—The feature of the evening was the presentation by John G. Praetz of Liquid Carbonic Corp., and his display of fountain equipment motion pictures and slides. The meeting was held at the William Byrd Hotel where approximately 100 people were present, including members and friends. Every member of the chapter was accounted for at this meeting, including the following who had been with the armed forces for the past three years: B. A. Hauck, J. B. Broughton, Clota Brown, P. B. Bruffey. Following the talk by Mr. Praetz, refreshments were served and several new applications for membership were received.

LOUISIANA CHAPTER

Baton Rouge, La., March 20—A successful and informative meeting was held at the Heidelberg Hotel South Room this date with 85 members and friends attending. Stanley Palmer of Liquid Carbonic Corp. gave a clear and concise picture of Liquid Carbonic Corp. service, with accompanying slides which made it interesting.

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SACRAMENTO VALLEY CHAPTER

Sacramento, Calif., Feb. 7—Allyn Schoen, Chairman of the Code Committee, reported on progress of a refrigeration code for the City of Sacramento. Gerald Kennedy, delegate to the California State Convention, gave a general report on the formation of that association. William Schaedler turned in his resignation as Secretary of the chapter, which was accepted. On the educational program, C. W. Gooderham of Linde Air Products, and Theodore Howard of Mueller Brass Co., conducted a soldering contest. Wilbern Griffin won first prize with a total time of 7 minutes, 23 seconds; and Leonard Fox with a total time of 7 minutes, 43 seconds, placed second.

BOSTON CHAPTER

Boston, Mass., Feb. 20—J. G. Praetz and his associates of the Liquid Carbonic Corp. were the feature speakers of the evening. Aided by a glass evaporator, slides and motion pictures, Mr. Praetz explained the various circuits used in their soda fountains and ice cream cabinets. About 160 attended this meeting, which included guest members from Worcester and Providence chapters.

LONG BEACH CHAPTER

Long Beach, Calif., March 13—The meeting was preceded by a chili con carne dinner, arranged for by the Eats Committee. Twelve new applications for membership were accepted at the meeting and given their obligation of membership. The Secretary reported on the State meeting held at Fresno and announced that the next meeting would be on May 11 and 12. Reservations were to be made following the meeting for the chapter delegates who would attend the meeting. Harold Phillips gave an interesting explanation of the air conditioning system in the surgical rooms of the Navy Hospital. Mr. Van Ginkle gave a talk on his recent trip east, where he visited the National Office. He gave a glowing account of the future outlook for the Society.

SAN DIEGO CHAPTER

San Diego, Calif., Feb. 21—Sixty members and guests attended the dinner and meeting. George Coombs, associate member of the chapter and one of the owners of the California Electric Works, where the meeting was held, was host. After a tour of inspection through their shops, which are the largest in San Diego, a fine steak dinner was served at their expense. During the business meeting R. L. French and M. R. Hanks, the chapter delegates to the recent State meeting in Fresno, gave a report on the proceedings and results of the meeting. Mr. French was elected to the Board of Directors and Mr. Hanks, Treasurer of the California State Association. Representatives of the Bussmann Mfg. Co. gave a discourse with films on proper fusing of motors. The meeting ended with a drawing for several door prizes and, as usual, many of the members journeyed to the club rooms for several hours of Two-card Poo.

TRENTON CHAPTER

Trenton, N. J., Feb. 20—Mr. Koller reported favorable progress in securing an amendment to the city ordinance, which would permit service men to work on water cooled units. He also read a letter of authorization to service men permitting them to make repairs on units where no new connections are made to drains or water lines. Recommended apprenticeship standards, as outlined by the RSES, came in for some discussion and the possibility of securing the series of films offered by the National Society was considered. On the educational program, A. Greising of the Gates Rubber Company gave a talk on the rubber industry, belts and design factors of V-belt drives. The balance of the evening was devoted to an open discussion on service problems.

ROCHESTER CHAPTER

Rochester, N. Y., March 1—It was voted at this meeting to close the charter so that no more applications received after this date would be included therein. Permanent officers were elected as follows: Art Snyder, *President;* George Davenport, *First Vice-president;* Lewis B. Nohle, Sr., *Second Vice-president;* James A. Stevenson, *Treasurer;* John Eggleston, *Secretary;* William Faltz, *Sergeant-At-Arms.* Immediately after taking office, president elect Art Snyder appointed John Mendell as Chairman of the Educational Committee. The National constitution and by-laws were read and after discussion adopted by the chapter. Meeting dates were set for the second Wednesday of each month. Herman Goodman was appointed chairman of the Finance Committee; Harold F. Hall chairman of the Entertainment Committee, and William Faltz chairman of the Sick and Welfare Committee.

NU-COIL
REFRIGERATOR
COIL
CLEANER

NO OBJECTIONABLE ODOR
UTMOST IN LABOR SAVING
-
CAN BE USED OVER REPEATEDLY
OFTEN IMITATED
IS PRACTICAL—QUICK ACTING
LET YOUR WHOLESALER
EXPLAIN . . . . *NOW*

SKASOL CORPORATION
112 Glencoe Ave. Webster Groves, 19 Mo.

TRI-COUNTY CHAPTER

Aurora, Ill., March 16—Members and friends of Tri-County Chapter met at the Marison Co. plant in South Elgin. They were conducted on a tour through the plant by the manager, Harold Hoffman, and were privileged to see the drum spinning machines in operation, as well as the making of dehydrators and the testing of service drums. After the tour, Albert Fine, President and General Mgr. of The Fine Products Co. of Chicago, sole distributor for the refrigeration products made at the plant, invited those present to a luncheon which had been prepared and served by the ladies of the Marison Co. The guests consumed large quantities of roast turkey and ham sandwiches with all the trimmings and topped them off with several cases of good judgment.

OIL CAPITAL CHAPTER

Tulsa, Okla., Jan. 23—Part of the business meeting was a discussion on the State Electrical Code and in order to make a test case of the provisions of the Code, the chapter voted to pay the legal expense of the first member arrested or fined for violation of the Code in performance of his regular refrigeration service duties. The agreement among the members includes permission for the Treasurer to assess members for any additional money necessary to defend this first test case.

READING CHAPTER

Reading, Pa., March 5—After a brief business session the educational committee introduced Paul Esterly of Reading Coca-Cola Bottling Works who presented a technicolor sound movie on the manufacture of Coca-Cola and its allied products such as bottle caps, bottles, gas, etc. A sports picture followed including Jack Dempsey, Gene Tunney, Buddy Baer and others. Coca-Cola and other refreshments were served following the meeting.

WESTERN MASSACHUSETTS CHAPTER

Springfield, Mass., Feb. 25—The main feature of the evening was the presentation by J. G. Praetz, General Service Mgr. of Liquid Carbonic Corp. Many guests were present at the meeting from the Hartford, Conn., Worcester, Mass., chapters and the Springfield Trade School, Chicopee Trade School and the University Extension School. The educational program lasted more than three hours which did not permit a business meeting.

CHARLESTON CHAPTER

Charleston, W. Va., March 12—The Educational Committee was requested to try to secure a showing of a motion picture depicting the activities of the Conlon Baking Company for the next meeting. On the educational program of this meeting, W. H. Watts of Standard Oil Co. presented a movie entitled "A Date with West Virginia," presented through the courtesy of Esso Marketeers.

AZALEA CITY CHAPTER

Mobile, Ala., Feb. 20—It was at this meeting that the membership voted to close the charter so that no new members from that date on would be included as charter members. Plans are going forward for the charter presentation at which time a party will be arranged for the enjoyment of both members and their families.

CENTRAL CONNECTICUT CHAPTER

Hartford, Conn., Feb. 13—This was the date of the annual banquet at which time the newly elected officers were officially presented. They are: Frank H. Tarala, Hartford, *President;* John A. Parr, Wethersfield, *First Vice-president;* William C. Heald, East Hartford, *Second Vice-president;* Charles Bidwell, East Hartford, *Treasurer;* Theodore J. Sobola, Hartford, *Recording Secretary;* Francis B. Dungan, Hartford, *Corresponding Secretary;* Harold A. Gorman, Windsor, *Sergeant-At-Arms.* Board of Directors—John W. Barrett, William S. Day and John Paull.

The evening was a complete success and there were numerous guests from chapters in Boston, Springfield and Worcester, Mass., Providence, R. I., and New Haven and Waterbury, Conn. A delicious dinner was served, followed by two hours of entertainment. Special Agent John Buscher of the F.B.I. gave an outline of some of his experiences in the Federal Bureau of Investigation during the last few years. Henry Barnett acted as Toastmaster and proved to be a humorous speaker. Aetna Life Insurance Company presented an interesting and educational demonstration of possible hazards in the home from gas, dust and electricity.

Feb. 25—The meeting was held in Springfield combined with the Springfield, Mass., Chapter. The feature of the evening was

THIS SPRING FOR YOUR REFRIGERATION PARTS AND SUPPLIES

BUY Kelvinator

Competitively Priced

Conveniently Warehoused

April showers bring May flowers . . . but even more important, they mark the time for the refrigeration service man to get ready for his busy season. This year the alert refrigeration service organization will be the one that stocks up on parts *early*. Supplies are bound to be limited while service calls increase.

That's why more and more service organizations and independent service men alike are turning to Kelvinator Parts Depots now for their hot weather refrigeration requirements. Established at strategic points throughout the country, Kelvinator's 50 points of distribution make refrigeration parts and supplies, including condensing units, quickly available in every locality.

NASH-KELVINATOR CORPORATION, Detroit.

BUY KELVINATOR FOR ALL YOUR REFRIGERATION REQUIREMENTS

Kelvinator

CONDENSING UNITS

REFRIGERATION PARTS AND SUPPLIES

an educational demonstration by Liquid Carbonic Corp.

FOX RIVER VALLEY CHAPTER

Fond du Lac, Wis., March 6—During the course of the business session the original charter of Fox River Valley Chapter was presented to President Wm. Quinn by E. K. Wagner. After the business meeting was adjourned George Thuerwachter gave an interesting talk and demonstration on electrical switches, safety devices and general electrical trouble shooting. Refreshments were served after the meeting.

LOS ANGELES CHAPTER

Los Angeles, Calif., Jan. 30—This meeting had one of the largest attendances of the chapter's history. Ninety to ninety-five members and guests were present. Dinner was served preceding the meeting and photographs were taken of the assembly. The feature of the evening was a tube bending contest conducted by Gordon Duerr of the Imperial Brass Mfg. Co. Three prizes were offered, the first an Imperial Flaring Tool Set; the second an Imperial Flare Block; and the third a large Imperial Tube Cutter. All contestants finished their project under 30 minutes with Woody Smith turning in the fastest time of 12 minutes and 15 seconds. Final winners, after demerits were added to the time, were Woody Smith 1st, Marty Andrews 2nd and Robert Buss 3rd.

MISSOURI VALLEY CHAPTER

Omaha, Nebr., Feb. 18—Following a short business session, Geo. M. Monjian of Liquid Carbonic Co., entertained with motion pictures of Liquid Carbonic soda fountains and ice cream cabinets. There were 83 in attendance, all of whom enjoyed the presentation.

TWIN CITIES CHAPTER

Minneapolis, Minn., Feb. 11—The meeting was held in the offices of Liquid Carbonic

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LOS ANGELES TUBE BENDING CONTEST WON BY WOODY SMITH

In a tube bending contest held at the January 30th meeting of the Refrigeration Service Engineers Society, Los Angeles Chapter, at the Royal Palm Hotel, Woody Smith of V. E. Denny Refrigeration Sales and Service, Pasadena, California, came out as the No. 1 man. The meeting drew an attendance of over 100, and there were 8 contestants. Second place went to Marty Andrews of Andrews Refrigeration Service, Los Angeles, and third place to Bob Bush of Baker Ice Machine Co., Los Angeles. The contest was sponsored by The Imperial Brass Mfg. Co.

Where the question is refrigeration . . .

the answer is . . .

QUESTION: Why do engineers recommend G-E Condensing Units for jobs ranging all the way from locker plants to beverage coolers?

ANSWER: The G-E Condensing Unit is *modern* —uses non-inflammable, non-explosive, non-toxic Freon gas; it's *compact* — takes up a fraction of the space required by old fashioned units; it's *efficient* — provides a high refrigeration output at a low operating cost.

QUESTION: How can an up-and-coming refrigeration engineer cash in on the G-E reputation for dependability?

ANSWER: Specify G-E equipment for *every* refrigeration job. Get in touch with us for full information . . . for specifications. We'll be glad to help on any problems you'd like to discuss.

General Electric Company, Air Conditioning Dept., Section 6714, Bloomfield, N. J.

GENERAL ELECTRIC

Corp. and after the meeting was called to order, business was dispensed with and it was immediately turned over to the speaker of the evening, George Monjian of Liquid Carbonic Corp. He entertained the meeting with approximately two hours of explanation of refrigeration circuits on Liquid Carbonic's soda fountains and ice cream cabinets.

DES MOINES CHAPTER

Des Moines, Ia., Feb. 21—An informal meeting was held at Hotel Fort Des Moines at which time Liquid Carbonic Corp. conducted their clinic. Much valuable information was gained from the discussion and display of Liquid equipment. Forty-five refrigeration, carbonic and ice cream men attended. A social gathering was held following the meeting.

DAYTON CHAPTER

Dayton, O., Feb. 14—Twenty-two of the members drove through a raging blizzard to attend a meeting in Lima, held for the purpose of organizing a chapter in that city. They received a hearty welcome from the more than twenty-five refrigeration men gathered there, and even though the night was bad and it was necessary to leave early, they felt the effort was worthwhile.

Feb. 28—After the business of the evening was completed, Fred Gambul and Frank Walbridge of Minneapolis-Honeywell Company, presented a movie on electronics which proved highly interesting to the attendance. The first film of the series provided by the National Society was shown to some fifty members, all of whom felt it was a worthy educational program and that none of the balance of the series should be missed.

TRI STATE CHAPTER

Huntington, W. Va., Feb. 12—The Chairman of the Educational Committee gave an outline of the program of films to be presented starting with the April meeting. The annual election of officers took place during the evening with the following results: Joe H. Campbell, *President;* M. A. Nuzum, *First Vice-president;* George Newton, *Second Vice-president;* George M. Haldane, Jr., *Secretary;* Joe S. Valdes, *Treasurer;* George W. Douthat, *Sergeant-At-Arms.* Board of Directors—A. W. Gruber, Warren J. Fountain, A. A. Ward, Hobart Davis and Everett Chapman. Chairman of the Educational Committee—A. W. Albertsen.

SUNSHINE CITY CHAPTER

St. Petersburg, Fla., March 5—The educational program of the evening included a quiz contest conducted by the Chairman of the Educational Committee, Mr. Shaw. It was followed by a general discussion among the members. Mr. Dance made the suggestion that a question box be placed on the table to receive any suggestions or questions the members wish to ask.

MISSISSIPPI VALLEY CHAPTER

Davenport, Ia., Feb. 27—An attendance of 100 was recorded at this meeting, feature of which was the Liquid Carbonic presentation. The show lasted two and a half hours and presented many interesting points on soda fountain and ice cream cabinet installation and service.

March 5—The educational program was discussed at length and it was the opinion of the chapter that a program should be planned for a full year. Movies on refrigeration service were shown following the business session.

MONTGOMERY CHAPTER

Montgomery, Ala., March 11—The usual business of the organization was discussed at this meeting and plans were completed for the educational program which will have its beginning on April 15. Mr. Layfield of the Oakite Corporation made an interesting talk on the cleaning and scaling of coils and condensers. It was voted unanimously to have Mr. Layfield mail each member detailed literature concerning the cleaning of coils.

WORCESTER CHAPTER

Worcester, Mass., Feb.—The meeting was conducted at the "Sealtest" Auditorium of the General Ice Cream Corp. Pierce Goodney was the host and provided the space, the speaker, and the strawberries with ice cream. The speaker was Stanley Barlow of the Frigidaire Corp., who spoke on "moisture." In his interesting and helpful discussion he covered moisture in the system, and moisture in the serviceman.

March—The first speaker was William O. Reichenbacher, Civilian Consulting Engineer at the Paxton Navy Yard who spoke on marine refrigeration equipment. The second attraction was a lecture and display by James Barry and Jack Dannels of the Sporlan Valve Co. There were two attendance prize winners. Pierce Goodney won the wheel puller donated by Bob Sheperdson and Bud Barry won the check for coffee and sandwiches for the members.

Airserco PRODUCTS

THE TRIPLE ANSWER TO MANY SERVICE PROBLEMS

Here's help in speeding up your road calls! The Airserco Analyzer quickly starts up hermetic and open type units by creating fifty-six starting combinations. Electric motors and units up to ⅓ HP tested under actual working conditions. The Airserco Analyzer may be left on the job for emergency service and the unit permanently repaired later by supplying a starting kit derived from the dial and weight readings. The "KNOW-HOW" is built in. Complete with cords, calibrated weights, fabric carrying case and instructions.

Model EJ.....$125.00

AIRSERCO ANALYZER

3-WEIGH HOLDER

THERMOSTATIC CONTROL TESTER

The Airserco Thermostatic Control Tester is a must for every refrigeration service engineer because: (1) It indicates quickly cut in and cut out temperatures; (2) does not require removal of control from cabinet; (3) eliminates unwarranted tampering with thermostatic controls; (4) shows customer defective part. It comes complete with leather pocket case, instructions and bulb adapter. Fully guaranteed.

Model A100.....$19.50

The Airserco three-weigh holder facilitates the use of the control tester and eliminates that tank holding hazard during a unit charging operation. The three-weigh holder quickly indicates correct amount of refrigerant used from 4 oz. to 10 lb. The cylinder is free to move in any position during the charging operation. Complete with bench and tool box flanges and instructions. Fully guaranteed.

Model JC.....$12.50

SEE YOUR JOBBER OR FOR MORE "KNOW-HOW" WRITE

AIRCRAFT SERVICE COMPANY

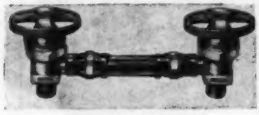
435 MELWOOD STREET · PITTSBURGH 13, PA.

New and Improved Appliances

Addresses of Manufacturers represented in this department can be obtained from the Editor

Henry Gauge Set Strainer-Filter-Drier

HENRY VALVE CO., 3260 W. Grand Ave., Chicago 51, has announced the development of a new gauge glass set featuring Henry Diaphragm Packless Valves.



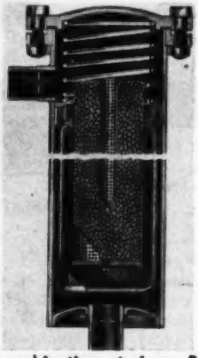
Gauge glass set

The new set is recommended for installation on accumulators, liquid receivers, oil reservoirs, etc., and is particularly useful for installations in which there is surging or splashing within the vessel. The packless valve construction eliminates valve stem packing. If the glass tubing should be accidentally broken while the valves are open, a safety ball check in each valve operates to keep the liquid from escaping and to maintain pressure in the vessel. Additional safety is afforded by a sturdy slotted metal guard which protects the tubing.

Forged brass valve bodies and fittings. ½" M.P.T. screw ends. Tubing is rated at 500 psi (cold) for lengths up to 10"; 420 psi, 11-20"; 340 psi, 21-24". Horizontal valve outlets are 15" center-to-center, standard. Standard tubing length 12"; exposed length, 10". Other lengths may be had on special order.

The company has also announced the development of a combination strainer-filter-drier designed especially for mobile refrigeration installations. The new unit is built to withstand the vibration and abuse encountered in railroad and truck installations, for which standard commercial construction is not considered adequate.

Dehydrator is readily renewed with factory-sealed dehydrant cartridge. Cartridge has inlet dispersion tube which prevents channeling of refrigerant through drying agent, assures maximum utilization of dehydrant, and minimizes pressure drop. Filter is locked on dehydrant cartridge by snap-ring, and filter-drier assembly is securely held in place by compressed spring, preventing undesirable by-passing.



A combination strainer, filter and drier

Flange is distortion-proof and may be quickly removed for access to filter-drier elements.

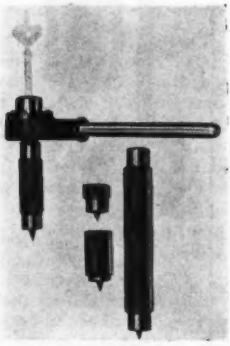
Screen area, 136 sq. in. Volume of dehydrant, 50 cu. in. Shell diameter, 3⅛". Recommended for use with systems up to and including 5 H.P. Shipped with inlet and outlet ports sealed with soft-soldered caps to protect interior of unit from moisture and dirt. Drier cartridges are packed in moisture-proof containers when shipped separately. Standard drying agent is silica gel; other dehydrants are furnished on special order. Sizes: ⅝" and ¾" O.D. tubing connections.

New "Liberty" Ratchet Drill-Driver

DEVELOPMENT of the New Liberty Ratchet Drill-Driver is announced by Techtmann Industries, national distributors—manufactured by the Liberty Tool & Machine Co.

Designed for drilling between studs and joists or restricted spaces in buildings or other structures, this tool gives positive feed at each turn of the drill bit. The compact head allows centering of holes within 1¼" of the nearest obstruction. Any standard wood bit can be used. Steel drills can be used with an adapter chuck.

The thrust of the lead screw is carried directly to the drill shank by a solid shaft. Large wearing surfaces hardened to a depth of .010" insure long service under severe conditions. If necessary, any part can be readily replaced. The ratchet is fully enclosed in a strong, semi-steel head, providing protection against dirt. A long lead screw in combination with 1", 2" and 8" extensions allows use of the Ratchet Drill-Driver over a wide range of dimensions. In actual use, holes up to 3" diameter have been drilled without difficulty.

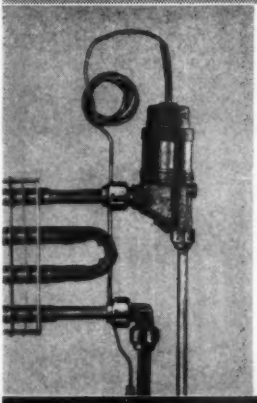


Ratchet drill driver

Although intended primarily for use on wood members, steel plates or beams can also be drilled by reducing the feed, which can be done by revolving the lead nut in the same direction as the drill.

*STA-TITE

THE REFRIGERATION FLARE NUT which cannot Creep or Work loose



Moisture will work its way along the threads, to fill the space between the fitting and the inside of the flare nut. Confined in this space, the water, in its attempt to freeze during the operating cycle, develops a tremendous pressure—16,400 p.s.i. at 20° F. Something has to give at such high pressures (1) the nut may stretch, (2) the male fitting may collapse, (3) the copper tube flare may extrude any one of which will allow the flare nut to loosen. You know the rest—moisture in the system and/or loss of refrigerant. A condition which has long baffled the refrigeration industry

NOW—Superior engineers have found a positive cure—the new "STA-TITE" Flare Nut. By simply providing relief openings in otherwise standard flare nuts, the possibility of pressure being created is entirely eliminated the flare nut stays tight!

Thousands of "STA-TITE" Flare Nuts already in service have yet to show a single failure Moisture trouble, costly and annoying leaks, because of so-called "creeping" flare nuts, have been eliminated completely

Get "STA-TITE" Flare Nuts from your jobber Use them on all connections which are subject to frequent or occasional frosting and defrosting Banish "creeping" and leaks forever!

"STA-TITE" is another Superor contribution to better refrigeration!

*U.S. Patent 2,323,099

NO.134 A

SUPERIOR VALVE & FITTINGS COMPANY

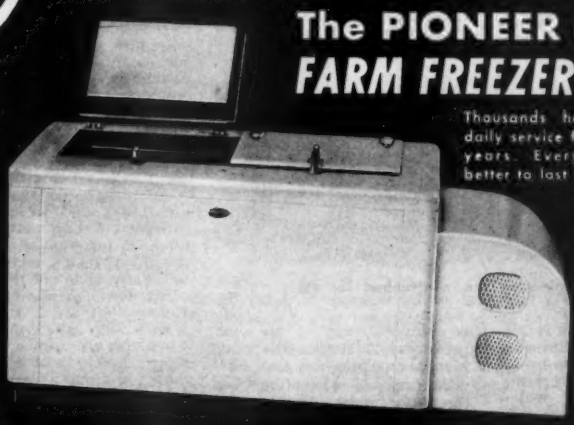
PITTSBURGH - 26 - PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • STOCKS: CHICAGO 6 • LOS ANGELES 11 • DEALERS EVERYWHERE

SANITARY Quicfrez

The PIONEER of the FARM FREEZER FIELD

Thousands have been in daily service for over seven years. Every unit "built better to last longer."



SANITARY REFRIGERATOR COMPANY • Fond du Lac, Wis.

Form No. 1246-3

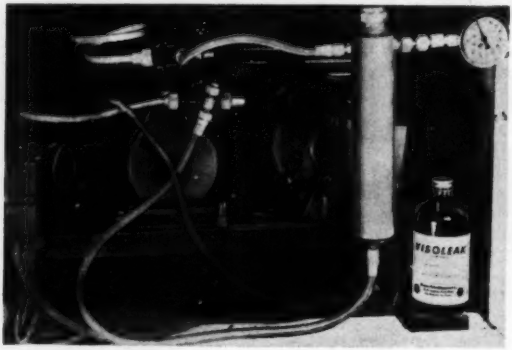
Wyco Hy-Speed Saw

THIS new unit by Wyzenbeek & Staff embodies all the features of today's development for fast and dependable work. Attached to any ¼" electric drill, air drill, or flexible shaft, it saws and files metals, wood and plastics. It chucks in drill chuck or collet—uses ordinary hack saw blades and standard ¼" shank machine files. Design and construction make it exceptionally easy to use in difficult places.

Absolutely true sawing assured by new square plunger with takeup for wear. All rotating parts are ball-bearing, running in oil. There are no gears, no cams. All bearing parts are heat-treated.

Visoleak Charging Set

G. B. BLOOM, General Manager of Western Thermal Equipment Company, announces that a new Visoleak Charging Set is now available for immediate delivery. This charging set meets a demand of the refrigeration and air conditioning industry for a device to inject Visoleak, add refrigerant oil, or to re-charge sealed units.



Visoleak charging set shown attached for use

The Visoleak Charging Set is extremely simple in design and if used according to instructions, will perform its numerous functions without any chance of air or foreign matter being introduced. The set will last for years of hard use and should be a part of every refrigeration service engineer's tool kit.

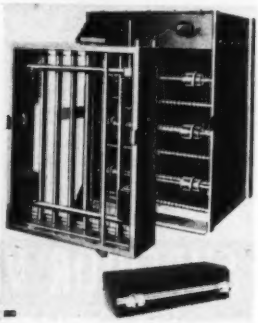
The Visoleak Charging Set is compact, easy to use and inexpensive. The trade price for the charging set complete with hoses is $7.50, and for the filler only—$6.00.

For further information, write to Western Thermal Equipment Company, 1701 West Slauson Ave., Los Angeles 44, California.

The Electro-Cell

THE Electro-Cell, a unit type electronic air filter with removable collector plate assemblies, is one of of the latest type now being manufactured by the American Air Filter Co., Inc.

The positive and negative collector plates are assembled on cross rods to form horizontal groups which are easy to handle and may be readily removed from the filter casing. This makes possible a number of innovations in construction which simplify installation, improve performance, and assure better maintenance.



An Electronic Air Filter

Sliding into the filter casing in much the same manner as a desk drawer, plate assemblies can be removed for cleaning and reoiling at convenient water and sewer connections. By keeping a spare set of plates sufficient for one section for use as a replacement, the length of time the filter is out of service is reduced to a minimum.

An automatic washing device has been developed permitting collector plate assemblies to be washed in place for installations where manual washing is not feasible.

Standard sections of the Electro-Cell are 2 and 3' in width with a capacity of 1,000 cfm per unit and range from this minimum to as many sections as are needed for the particular installation. The construction of the filter is such that it eliminates the duplication of top and bottom sections of box-like units when assembled one upon another.

NOW . . .

PIPE JOINT COMPOUND

in Stick Form

FOR ALL THOSE PIPE INSTALLATION AND REPAIR JOBS—Always Ready for Instant Use

NO LEAKS
TIGHT JOINTS ASSURED
HANDY AS A PENCIL
Just rub 3 or 4 strokes across pipe threads. It spreads and fills threads when turned.

ECONOMICAL - HANDY - CLEAN

NO MESS - NO BRUSH
NO WASTE

TRADE MARK REG. PATENTED

Note these **FEATURES**

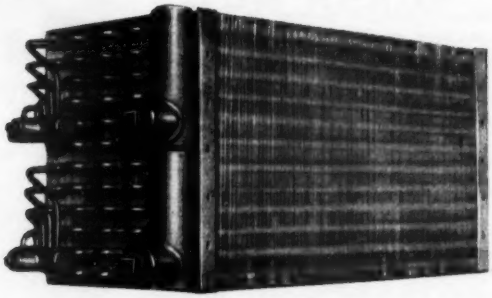
- Withstands Freon, methyl chloride, butane, propane and other refrigerants, oil, air, water, brine, etc.
- Lubricates and completely seals pipe joint threads, nuts, bolts, gaskets, turnbuckles, etc.
- Contains no lead. Contains no injurious ingredients.

ASK YOUR DEALER—OR WRITE US

COPR. 1946 **Lake Chemical Co.** 626 N. WESTERN AVE., CHICAGO 12, ILL.

FIN COILS

Rempe



Coil shown: Integral liquid header. Finger feeds to circuits. Common suction header for return of refrigerant gas.

For all types of commercial or industrial low temperature installations. To your specifications. Sizes to 16 ft. lengths.

Copper tube with aluminum fins, or all steel, hot galvanized. Use with any refrigerant, or liquid cooling medium.
All coils tested to 400 lbs., and dehydrated before shipment.

Send B/P or details for prompt quotation. Ask for new Rempe Catalog.

REMPE COMPANY
358 No. Sacramento Blvd., Chicago 12, Ill.

News From—

The Dispatcher

COY DERRICK of 308 S. Gregg Street, Columbia, S. C., former owner and operator of Coy's Refrigeration Service of 731 Main Street, has recently received a discharge from the Navy and plans to reopen his business in the near future.

Mr. Derrick was a fireman first class in the Navy, and served fifteen months. He is married and has two children.

The refrigeration service will be complete with service, sales, and commercial refrigeration equipment.

A business license for a new refrigeration repair service in Monrovia, Calif. was recently issued by the city clerk. The new business will be operated by Leo L. Burns at 112½ W. Lemon Avenue and will be known as the Burns Refrigeration Service.

The Frontier Refrigeration Company, 904 Main Street, Buffalo, announced that it expects to occupy on April 1st its new building being erected at 872-874 Main Street at a cost, including equipment, of $80,000. The two-story structure, with basement, has a frontage of 50 feet on Main St. and a depth of 90 feet. The company, owned by David M. Zimmerman and Paul R. Readett, handles Frigidaire products.

Atkins Appliance Service in Carrollton, Ga., has been appointed dealer of York Commercial Air Conditioning and Refrigerating Equipment for Carroll County, Ga.

R. F. (Nick) Carter, City Plumbing Inspector of Fresno, Calif., until his resignation four months ago, is now in business with his two sons, Roy and Roland, as Carter and Sons, specializing in air conditioning and heating installations and refrigeration, at 1470 Blackstone Avenue, Fresno. In association with Carl S. Merriman at the same address, the Carter concern will also operate an agency for Servel Electrolux Refrigerators, handling both service and installations.

Both Roy and Roland Carter are veterans of the second World War, in which Roy served as a Diesel engineer on an LST invasion boat, and Roland with the Army Engineers for three and a half years. Roy is a graduate of the California Institute of Technology with a degree in air conditioning and refrigeration, while Roland is a graduate of the Santa Barbara State College.

Refrigeration Contractors

(Continued from page 50)

firms, representing an average of 6 per firm. The number of mechanics ranges from 1 to 30, showing that the national association is well balanced in having all sizes of firms in its membership.

An intensive membership drive is now on under the chairmanship of W. L. Drake, Indianapolis,

EBCO PROMOTIONS

LEE C. LOVE, General Sales Manager, Ebco Manufacturing Company of Columbus, Ohio, announces the appointment of Robert L. "Bob" Coon, as District Manager, Oasis Cooler Division, Ebco Manufacturing Company, 401 W. Town Street, Columbus 8, Ohio, with headquarters at 510 C. A. Johnson Building, Denver, Colorado, covering the Rocky Mountain States area of Colorado, Wyoming, Montana, Idaho, Utah and New Mexico and Arizona.

ROBERT COON W. L. WINCHESTER

A. R. Benua, General Manager, of the company, also announces the appointment of W. L. Winchester as Assistant Sales Manager.

Mr. Coon holds a Commercial Flying License, and owns his own plane. He will cover his District entirely by plane. Mr. Love refers to "Bob" as Ebco's Rocky Mountain Flying District Manager.

During the war years Mr. Winchester completed several important and varied engineering assignments. Prior to the war he was engaged in Commercial Refrigeration Sales Management, in the Midwest, where he has a wide acquaintance. He will assist in both the Oasis Cooler Division and the Kelvinator Cooler Division and will have charge of Ebco's National Advertising, sales promotion and sales training program.

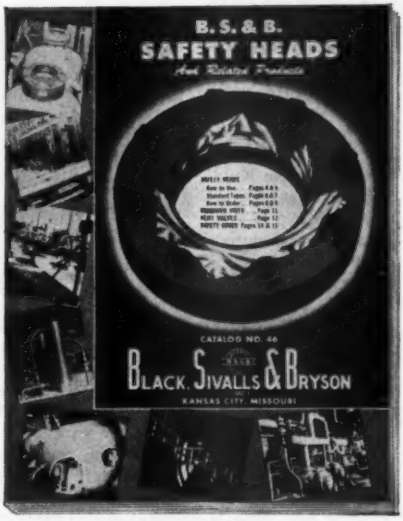
NOW!

FORGED FLARE NUTS AND FITTINGS

Ask your jobber for Details

Electrimatic

2100 INDIANA AVE CHICAGO 16 ILLINOIS



This New Catalog NOW READY

It Tells . . . .

Where to Use SAFETY HEADS

When to Use SAFETY HEADS

How to Use SAFETY HEADS

B. S. & B. SAFETY HEADS are now in use in most of the large industrial plants protecting pressure vessels. If you are not using SAFETY HEADS in your plant you will find this new catalog very helpful in planning your safety factors.

Write for Your FREE COPY

BLACK, SIVALLS & BRYSON, INC. 7500 E. 12th Street Kansas City 3, Mo.

CHURCHILL, WERB NAMED PERFEX BRANCH MANAGERS

THE Perfex Corporation of Milwaukee announces the appointment of Gil A. Churchill as Manager of their Chicago Branch and B. F. "Dutch" Werb as Manager of their newly-formed Milwaukee Branch.

G. A. CHURCHILL

B. F. WERB

Churchill's association with the Controls Industry dates back to 1925, and since that time he has worked in almost every phase of the industry . . . manufacturing, service, and sales. He joined Perfex in 1936 as a sales engineer in the Chicago Branch.

Werb is a veteran of twenty years experience in the Controls Industry. Before joining Perfex as a sales engineer in 1940, he held various positions with Underwriters Laboratories, Mercoid Corporation, National Radiator Corporation, and Oil Devices.

Perfex Subsidiary in Canada

A Canadian subsidiary to be known as Perfex Controls Limited, with headquarters at 73 Simcoe Street, Toronto 1, Ontario, is also announced.

E. G. SPALL

The officers of the newly formed subsidiary are J. K. Luthe, President; C. E. Lewis, Vice-President; E. G. Spall, Vice-President; V. R. Tate, Secretary; A. L. Eastcott, Treasurer; and J. F. Van Lane, Assistant Treasurer.

Opening his offices in Toronto on March 15, and actively heading the Canadian operation is Vice-President Edward G. Spall, a native of Canada. Spall is a veteran of 17 years experience in the heating appliance field, having been Manager of the Penn Electric Switch Division of Powerlite Devices Limited for 7½ years. Prior to that time he was affiliated with the James Robertson Company, the C. A. Dunham Company, and the Riley Engineering and Supply Company.

Assisting Spall at Toronto, is Murray K. Bowman, handling sales and field service. Bowman has been associated with the machine tool industry and was most recently Assistant Superintendent of automatic screw machine products of York Arsenal Limited.

$ $ $

IAMS & SEDDON RESIGN

HILLIS D. IAMS and Richard R. Seddon have resigned their positions as President and Treasurer of the Supply Distributors Corp. of Boston, Mass., which was organized a year ago.

Their stock has been purchased by Millard P. and Charles F. Koopman Jr., who will install new personnel and continue along the line of expansion as originally planned by the founders.

Mr. Seddon will continue his operation of the Miller & Seddon Co., and Mr. Iams' plans will be announced at a later date.

$ $ $

KOLD-HOLD NEW CATALOG

INFORMATION relative to the better storage and transportation of perishable products at lower costs is now available in a new catalog offered by the Kold-Hold Manufacturing Company of Lansing, Michigan. This catalog is a veritable book of refrigeration knowledge, combining specific refrigeration data with a description of product features and uses. It contains simple, lucid charts showing how to compute both low and high temperature plate requirements. It tells the specific and latent heats of the various perishable products. In addition it contains complete instructions for determining the dimensions and heat leakage for truck plates.

The new Kold-Hold catalog also describes the high efficiency and dependability found in Serpentine Plates for locker plant space cooling, for shelves and stands in sharp-

Cut!

CALL-BACKS

WITH GRUNOW CARRENE METERS

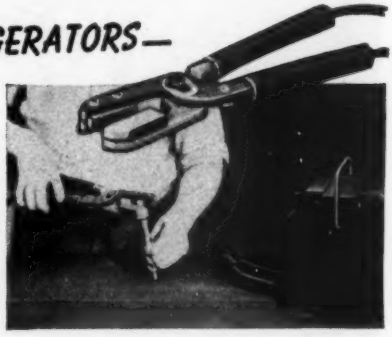
It is false economy *4 out of 5 times* to install an ordinary dehydrator. Genuine Grunow Meters have *built-in* dehydrator cans. Single seal of brazed phosphorous copper. Entire meter flow-tested. 50,000 in past five years. Satisfy your customers on the first call and have extra time for *increased* service profits!

Grunow **AUTHORIZED SERVICE, INC.**

4321 W. Fullerton Avenue, Chicago, Illinois

REPAIR AND SERVICE REFRIGERATORS—

— WIRING
— COPPER TUBING
— ELECTRODES, ETC.



with

IDEAL "THERMO-GRIP"
Electrically Operated
SOLDERING TOOLS

More and more refrigerator repair men are turning out top servicing jobs with these versatile soldering tools, that are more than just ordinary soldering irons — they are handy electrical soldering tools designed to handle hard and soft soldering—soldering terminals, lugs, delicate wiring, spot soldering, soldering copper tubing. Ideal for working in close quarters.

IDEAL "Thermo-Grips" do a better job—quicker! The part touched heats almost instantly. Safe—no pre-heating or open flame hazard.

Wide variety of attachments to choose from, for every kind of soldering work.

Write for Detailed Literature

PROMPT DELIVERY

IDEAL

Industrial Products Division
IDEAL INDUSTRIES, Inc.
(Successor to Ideal Commutator Dresser Co.)
1093 PARK AVENUE **SYCAMORE, ILLINOIS**
Sales Offices in All Principal Cities

freezing and as cabinet liners, shelves and dividers. It explains how "Hold-Over" Plate Type Evaporators maintain the temperature of delivery truck bodies at the uniform level necessary in the successful transportation of fresh meat, ice cream, frozen foods and other perishables.

This catalog is mailed free upon request to the Kold-Hold Manufacturing Company, Lansing 4, Michigan.

* * *

COHLER TO REPRESENT TEMPRITE

TEMPRITE Products Corporation, of Detroit, Michigan, announces the appointment of the I. H. Cohler Company, Manufacturers' Representatives, with offices in Chicago, Illinois, as its sales representative for the states of Wisconsin, Minnesota, Iowa, Northern Illinois and Northern Indiana. Mr. Cohler was formerly associated with the commercial sales division of Kelvinator, and has operated as Manufacturers' Sales Agent since early in 1940.

Pictured above is Mel W. Knight, General Sales Manager of Peerless of America, Chicago, inspecting a new Peerless Faster Freeze Finned Ice Cube Maker just off the production line.

The beautiful girl is Miss Betty Thomas, known to everyone who attended the Peerless suite at the REMA Convention at the Stevens Hotel, as "Miss Peerless."

Miss Peerless is currently appearing in the advertising of this manufacturer of refrigeration equipment. She will attend all conventions of the company and appear in all forthcoming advertisements as well as on their direct mail advertising.

BARAGAR APPOINTED SERVICE MANAGER BY ICEBERG LOCKERS

J. BARAGAR

ICEBERG Refrigerated Locker Systems, Inc., today announced the appointment of Jack Baragar as Service Manager for the company. Mr. Baragar has been in the refrigeration industry for the past twelve years. During that time he was successively a commercial service engineer, service manager, application and field engineer, and an instructor in refrigeration schools for army personnel. He comes to Iceberg Lockers from the Universal Cooler Corporation where he has been since 1942. Mr. Baragar will be in complete charge of service for the Iceberg Frozen Food Storage Units.

* * *

DAVIS TO MANAGE INDOOR CLIMATE INSTITUTE

WALTER P. DAVIS has been appointed Managing Director of the Indoor Climate Institute, with headquarters in Detroit, according to an announcement by T. A. Crawford, President.

W. P. DAVIS

Mr. Davis, who has been in Buffalo, New York, assumed his new duties March 15th. During the past nine years he has been Supervisor of promotional activities with the Buffalo Niagara Electric Corporation; Executive Secretary of the Oil Heat Association of Western New York; Secretary of the Buffalo Stoker Association; Assistant Secretary of the Electric Association of the Niagara Frontier and Executive Secretary of the Indoor Climate Council of Western New York.

Mr. Davis brings to the Indoor Climate Institute a background of practical experience in sales and educational activities with the public in the heating, cooling and air

"FARTHEST NORTH" in Modern Refrigeration

Write for catalogs, engineering assistance, or a representative to call.

DOLE REFRIGERATING CO., 5910 N. PULASKI RD., CHICAGO 30, ILL.

N. Y. BRANCH; 103 PARK AVE., NEW YORK 17, N. Y.

NORMAL SUCTION PROCESS WATER COOLERS

6 to 25 gallon capacities.

Compact in design . . . can be mounted on floors, walls or ceilings.

Suitable for drinking water bubbler service, cafeteria or restaurant glass filler service.

DAY & NIGHT

COOLER DIVISION

DAY & NIGHT MFG. CO.

One of the Dresser Industries

MONROVIA, CALIFORNIA

NEW YORK — A. C. Homeyer, 682 Bdwy. • Marc Sliantz, 565 Wash. Blvd. — CHICAGO

ST. LOUIS — B. H. Spangler, 3331 Market St. • J. E. Parker, 228 2nd St. — DECATUR, GA.

conditioning fields. The I.C.I. is now in its third year of operation. It is a non-partisan, impartial organization composed of the leading manufacturers in the heating, cooling and air conditioning industries who, through the Instiute, are endeavoring to acquaint the public with the importance and benefits of improved living standards to be obtained through automatically-fired central heating systems in the home. It is the starting point of controlled indoor climate and year 'round comfort.

✕ ✕ ✕

MEIKLEJOHN WITH ELPECO S. C. MONCHER PROMOTED

M. J. MEIKLEJOHN, who recently resigned as Production Manager of the Spencer Thermostat Company, has been appointed as New England Regional Manager for the Electric Power Equipment Corporation, makers of Green Dragon commercial refrigeration equipment. "Mickey" is well known to New England refrigeration men, having devoted more than four years to establishing better relationships among both Wholesalers and Service Engineers. For more than two years, he made his headquarters in Dallas, Texas, developing that territory.

M. J. MEIKLEJOHN

During the War, Meiklejohn served as Works Manager of the Philadelphia Mobile Shop Depot, one of the fastest producing projects of the Army Ordnance Department. He is a member of the A.S.R.E.

Assignment of the New York-New Jersey territory to S. C. Moncher as Regional Manager, has been announced by Elpeco.

Mr. Moncher spent much of 1945 in the engineering and development departments of Elpeco, and is familiar with both those products already being marketed, and those yet to be announced. He has been active in sales engineering for prominent companies since 1935, has been a frequent contributor to the Industry's various publications, and is the author of several books on Refrigeration.

He is an alumnus of Harvard and a member of A.S.R.E.

GENERAL CONTROLS APPOINTS NEW CHICAGO MANAGER

THE appointment of Edward B. Maire as Manager of the Chicago Factory Branch, 822 So. Michigan Ave., Chicago 5, Ill., was recently announced by J. F. Ray, Director of Sales, General Controls Co., 801 Allen Ave., Glendale 1, California.

Mr. Maire will devote his efforts to serving users of Automatic Pressure, Temperature and Flow Controls in Illinois, Indiana, Wisconsin, Iowa, Minnesota, North Dakota and South Dakota.

He has had eight years of successful sales, service and engineering experience in the automatic control business and is well known throughout the Midwestern area.

Canadian Distributor

Wells H. Morton & Co., Ltd., 224 11th Avenue West, Calgary, Alberta, Canada, are among the long list of General Controls' Distributors.

The Wells H. Morton Co. will distribute and serve users of General Controls' complete line of automatic pressure, temperature and flow controls in the provinces of Alberta and Saskatchewan in Canada.

Wells H. Morton & Co., Ltd., are well known in Canada for their service, sales, and engineering facilities.

✕ ✕ ✕

ARLINGTON SEAL AVAILABLE

A NEW type shaft seal, known as the Arlington Seal, is now available for refrigeration service work at jobbers throughout the country. The Arlington Seal has been designed to overcome many common installation and operating problems usually experienced with replacement shaft seals. It is produced by Modern Design Products Co., Chicago, Ill.

The seal is installed in the same manner as a bellows seal. It consists of two major parts—the steel shoulder seal ring with its synthetic rubber ring which rotates with the shaft and the stationary seal assembly which is fastened to the compressor, the same as a bellows, consisting of the flexible seal nose and springs mounted on the flange tube through which the shaft passes. Such unfavorable conditions as pitted and corroded shafts or slotted, undercut and bent shafts are overcome by the design and the method of installing the seal.

The only rotating part is the small shoulder seal which fits tightly on the shaft, back against the shaft shoulder. The seal joint

REFRIGERATION SERVICEMEN

Building good will and increasing your service business is possible by taking Meter-Miser calls

Locating the leak and recharging is one of the services you can render to Meter-Miser owners if you have a supply of—

HERVEEN

the IDEAL REPLACEMENT GAS

Customers and servicemen alike are finding this refrigerant meets their standards of performance when used in Meter-Miser units. When a loss of refrigerant has put the unit out of service, your job becomes a routine call with a supply of HERVEEN for your immediate use.

Send for bulletin on
"Procedure for Recharging
Meter-Misers with HERVEEN"

For deliveries, see your local jobber or write to

Modern Gas Co., Inc.
Manufacturers & Refiners
1084 BEDFORD AVE.
Brooklyn 5, New York

IF you can do it!

Out of his hat, you see the magician pulling a trained, experienced refrigeration man. Simple, isn't it? Or is it? For, unfortunately, there's NO magic formula for supplying refrigeration men. And the time is coming when you may wish there were!

One of these postwar days, there may be more men than jobs—and the work will go to the best qualified to handle it! That's why it's important today to prepare for tomorrow.

U.E.I. BALANCED TRAINING

U.E.I. (now in its 20th year) has a *balanced* training program designed for old-timers to brush up and young-timers to train in refrigeration. It's the kind of program that provides a *balanced* background of technical knowledge through home-study training *and* actual shop practice—A program that can help you—and maybe the fellows working for you—prepare to make the most of refrigeration and air conditioning tomorrow. And it's sound, interesting training, not quick magic! For there's no sleight-of-hand in U.E.I.'s program—it's been tried and proved by seasoned men, by leading manufacturers in the field, as well as the "youngsters"!

Mail this coupon today! You'll get free FACTS about U.E.I.'s *proved* program.

UTILITIES Engineering Institute
Dept. 45, 1314 W. Belden Ave., Chicago 14, Ill.

Please give me more information about Refrigeration and Air Conditioning Training.

Name .....

Address .....

City ..... State .....

between the rotating seal surface and the stationary surface is therefore close to the bearing where shaft misalignment and vibration are minimized. The seal joint is at the point where the oil supply enters the seal chamber, assuring positive lubication, even though the chamber does not retain any oil.

Flexibility is obtained in the stationary seal nose by means of a diaphragm acting synthetic rubber member which permits more than ample flexibility without the customary sliding action which is common in other replacement seal designs. The natural tendency of synthetic rubber to stick tightly to a metal surface is thereby used to advantage in the Arlington Seals.

Both seal surfaces, which are finished on the high grade steel sealing ring and the high lead bronze seal member, are ground and then lapped on equipment designed for such specialized work. The lapping operation produces flat smooth seal surfaces, uniform in quality for each seal.

The Modern Design Products Company of Chicago has appointed sales representatives for the far West and Southeast territories.

L. V. Russell of the Russell Sales Company, Los Angeles, California, represents the Arlington Seals throughout all of the West Coast area.

James Mayfield of Knoxville, Tennessee, who was recently discharged from the United States Merchant Marine in which he served as a refrigeration engineer, will represent Arlington Seals throughout the southeastern part of the country.

X X X

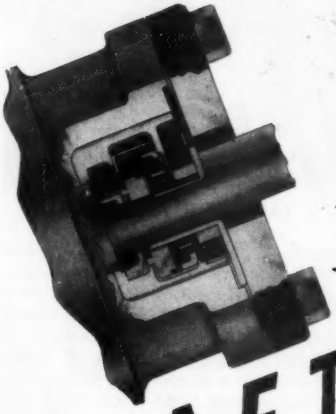
STREAMLINED CHARGING PANEL

THE Harry Alter Company, refrigeration supply jobbers of Chicago and New York, has engineered and installed in their Chicago plant a new method of transferring refrigerants from large supply cylinders to small cylinders as used by refrigeration servicemen. The supply refrigerant cylinders are stored on the fourth floor of the company's building and are connected with copper tube lines to the refilling department, which is located in the company's City Order Department on the second floor; thus, gravity aids in the flow of the refrigerant. A compact charging panel installed on the second floor contains exhaust equipment to remove any refrigerant fumes escaping during the refilling process. All of the refrigerants enter an Imperial refrigerant transfer unit, which is hooked up with a ¼ hp. condensing unit, and which reduces the temperature of the refrigerant, causing it to flow freely. There is provided, in addition, a vacuum pump for evacuating cylinders before charging. Since the system is sealed, the refrigerant flow through the system is completely moisture-proof. On the fourth floor, there are two supply cylinders for each refrigerant: "Freon-12" SO_2, Methyl Chloride and Methyl Chloride with tracer added. Duplicate shut-off valves are used throughout the system, enabling the operator to maintain safe control. Special automatic scales are used on the second floor, which are tested and inspected regularly by the City of Chicago, assuring full weights because of their visibility. A perpetual inventory record is maintained to indicate the amount of refrigerant remaining in each supply cylinder. The system which is now in operation speeds up the refilling of cylinders, assures full weights, and maintains dry refrigerants.

Fred Fenner, in charge of the fourth floor stock room of the Harry Alter Company, is here seen connecting up a full cylinder in the supply room, which feeds into the second floor charging and refilling equipment.

Pictured here, Jack Carava, Manager of the Order Filling Department of the Harry Alter Company, demonstrates the ease of refilling and the visibility of the new system.

Something New and BETTER IN



SHAFT SEALS

The ARLINGTON is simple in design. Easily installed — merely place shoulder seal against shaft shoulder — fasten main assembly to compressor in conventional manner. Installation labor costs cut to the bone — Simplicity and sturdiness assure long service — absolute customer satisfaction.

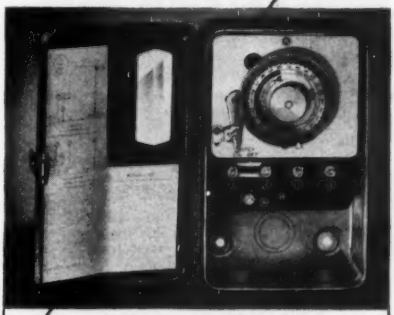
The BETTER ARLINGTON Shaft Seals available at your jobber.

Send for ARLINGTON literature.

Arlington SHAFT SEAL

MANUFACTURED BY MODERN DESIGN PRODUCTS CO. CHICAGO 24, ILL.

Defrosting AUTOMATICALLY CONTROLLED



● BY PARAGON TIME SWITCHES

Why worry about defrosting? Here's a Switch that provides dependable time control for SHARP FREEZERS in all types of automatic defrosting . . . in locker plants, dairies, breweries, packing houses and commercial refrigeration. Regular defrosting increases efficiency and reduces operating costs.

The PARAGON LINE offers service proved . . . precision . . . quality Time Switches and Timers . . . rugged and durable . . . with a great performance record.

Paragon can produce Time Controls for any system such as Freon, brine, ammonia, etc., regardless of temperature and whether defrosting is done by hot vapor, electric heat or water spray. Put your defrosting problems up to Paragon engineers.

PARAGON ELECTRIC CO.

742 Old Colony Building
Chicago 5, Illinois

ALL MODELS Telechron MOTORED

Paragon Chicago

CHICAGO-WILCOX APPOINTS NEW REPRESENTATIVES

CHICAGO-WILCOX MFG. CO., makers of gaskets and gasket materials, appointed two new representatives on the West Coast for their refrigeration replacement gasket accounts. These appointments will become effective April 1st.

L. V. Russell, of the Russell Sales Company, 1421 South Broadway, Los Angeles 15, California, will cover the states of California, Arizona, Utah and Nevada.

The states of Washington, Oregon, Idaho and Montana are to be covered by H. E. Kerry, 1105 White Building, Seattle, Washington.

Both of these gentlemen have had considerable experience in the refrigeration industry and are fully capable of intelligently serving the needs of the trade in their respective territories.

J. V. JAMISON RETURNS

THE Jamison Cold Storage Door Co. of Hagerstown, Md., advises that J. V. Jamison III has returned to take up his duties as President, after serving eighteen months on the heavy cruiser, U.S.S. Wichita. His tour of duty was confined exclusively to the Pacific Theatre, and he participated in the Second Battle of the Philippines, as well as supporting the landings and occupation of Okinawa.

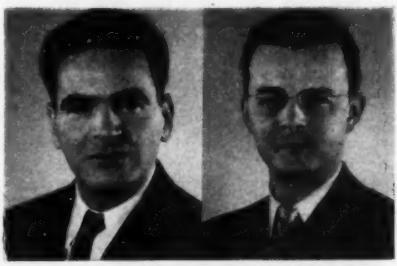
J. V. JAMISON

Lt. Jamison's resumption of his duties as President will greatly relieve his father, J. V. Jamison, Jr., Chairman of the Board, of many operational details.

HENRY VALVE APPOINTMENTS

HENRY VALVE COMPANY, 3260 W. Grand Avenue, Chicago 51, Illinois, announces the appointment of Harold F. Stamps and John E. Law as field engineers. Both are ex-service men.

Mr. Stamps, who will cover territory south and east of Chicago, was formerly a Chief Petty Officer in the 13th Battalion Sea-Bees. Previous to his entry in the service, he was a design engineer for a prominent Detroit architect and engineer, and for several years he was employed as a field engineer for a manufacturer of automatic control equipment.



J. E. LAW H. F. STAMPS

During the war, Mr. Law was a Captain in the 25th Infantry Division. He was stationed in Oahu, Hawaii, in December, 1941, and served through the Solomon Islands campaign. Prior to entering the service, he attended Iowa State University at Ames, where he received a Bachelor of Science Degree in Engineering. Mr. Law will cover territory north and west of Chicago.

MILLS HAS NEW AD DEPARTMENT ASSISTANT

RICHARD K. LAW, Director of Advertising, Mills Industries, Incorporated, announces the appointment of Robert J. Watt as Assistant Advertising Manager of the Company.

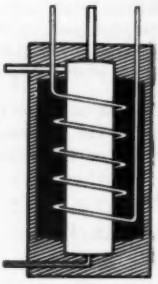
Mr. Watt, formerly an Army Captain, returned to the U. S. in January after serving two years in the Southwest Pacific. Before entering the Army, Watt served as Assistant Advertising Manager of Bauer & Black, Chicago.

PLANS FOR MOTOR SERVICE DESCRIBED IN NEW BOOKLET

TO MEET all requirements of appliance and machinery manufacturers, three service plans that provide 100 per cent service coverage for all fractional horsepower motors are explained in a new booklet announced by the Westinghouse Electric Corporation.

The new 12-page booklet describes in detail all three of these plans, tells who is

KRAMER Products



PANEL TYPE UNIT COOLER

PATENT APPLIED FOR

The

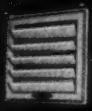
THERMOBANK

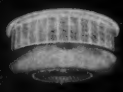
With the THERMOBANK a zero degree system is just as automatic as a 40 degree system — in fact more so.

It never needs to be defrosted because it defrosts itself automatically without the use of brine sprays, water sprays or electric heaters.

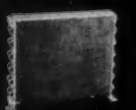
Write for Bulletin TV345-RS

COOLMASTER





RADIAL UNIT COOLER



AIR COOLED CONDENSER

FLOOR TYPE UNIT COOLER

KRAMER-TRENTON CO. *Trenton, N. J.*

MOTOR STARTING Capacitors

A REPLACEMENT TYPE FOR EVERY NEED

CORRECT TYPE BY CONSULTING CHART

UNIVERSAL AND EXACT-DUPLICATE TYPES

LOCAL JOBBER CARRIES CONVENIENT STOCK

AEROVOX capacitors

FOR RADIO-ELECTRONIC AND INDUSTRIAL APPLICATIONS

AEROVOX CORP., NEW BEDFORD, MASS., U.S.A.
Export: 13 E. 40th St., New York 16, N.Y. • Cable: 'ARLAB'
In Canada: AEROVOX CANADA LTD., Hamilton, Ont.

ARE YOU

Equipping a new Serviceman

Equipping a new Truck

Going back into Service Work

?

We have prepared a very helpful list of items suggested as a minimum stock. Several lists are available. Check the ones you want.

☐ Service Tools

☐ Parts for Domestic Service

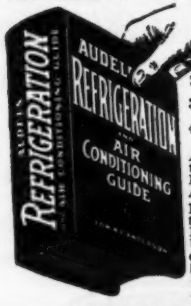
☐ Parts for Commercial Service

Use your letterhead and send your inquiry to Dept. A.

THERMAL COMPANY INC.

St. Paul, 4, Minn. 2410 University Ave.
Milwaukee, 3, Wisc. 749 No. Seventh St.
Des Moines, 9, Iowa 106 Eleventh St.
Cedar Rapids, Iowa 503 Fourth Ave. S.E.
Great Falls, Mont. 306 First Ave. South

JUST OUT! 4 Books in One!



Covering:
Basic Principles, Servicing, Operation, Repair of
1. Household Refrigeration
2. Special Refrigeration Units
3 Commercial & Industrial Refrigeration
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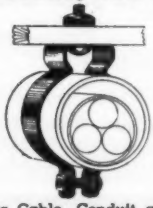

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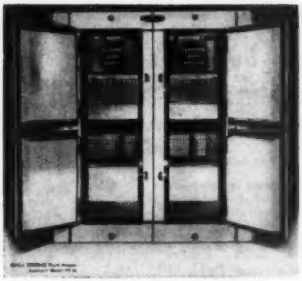

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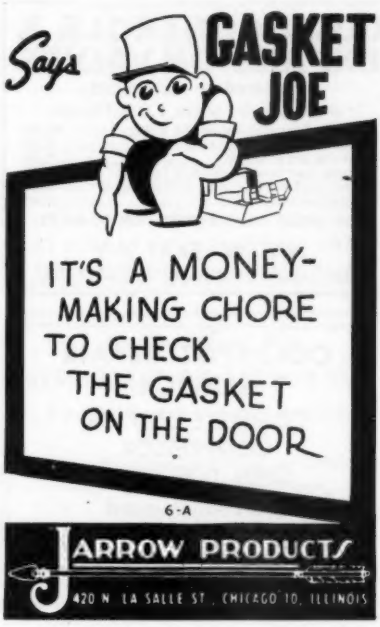
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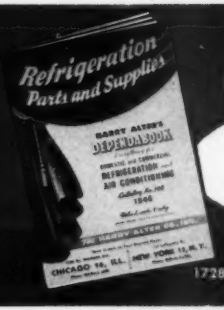

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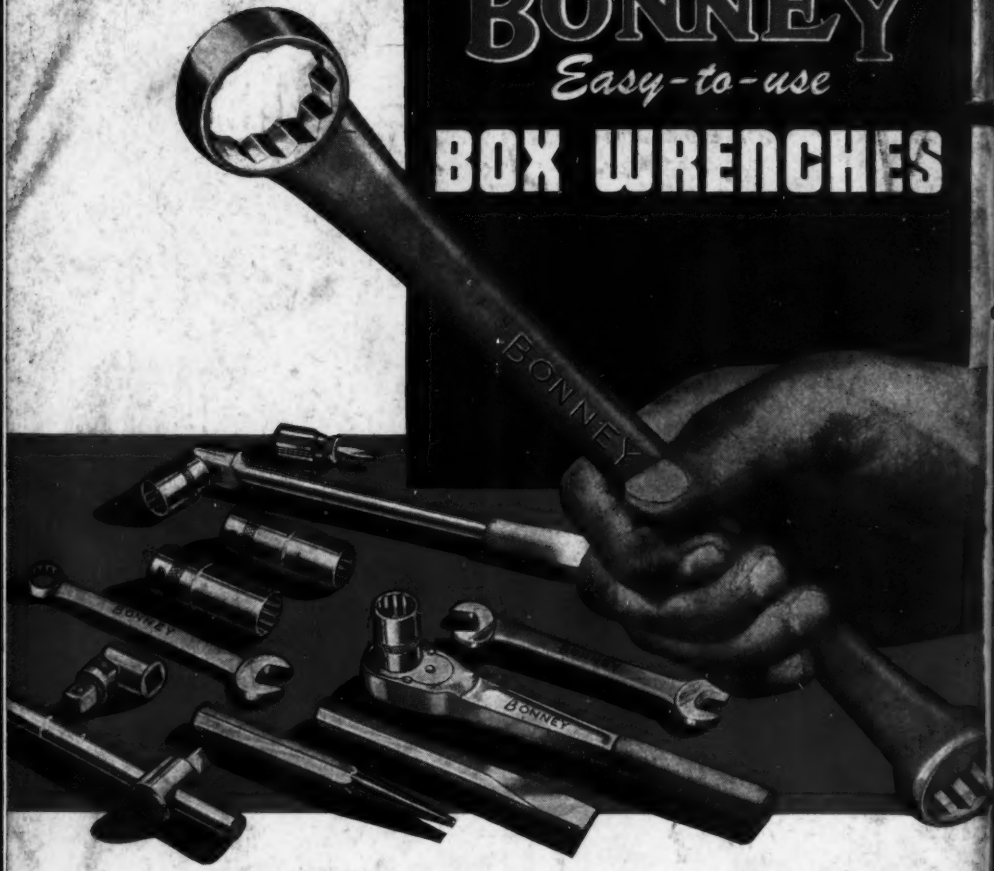

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